

JPRS-TND-85-004

26 February 1985

Worldwide Report

NUCLEAR DEVELOPMENT AND PROLIFERATION

FBIS FOREIGN BROADCAST INFORMATION SERVICE

NOTE

JPRS publications contain information primarily from foreign newspapers, periodicals and books, but also from news agency transmissions and broadcasts. Materials from foreign-language sources are translated; those from English-language sources are transcribed or reprinted, with the original phrasing and other characteristics retained.

Headlines, editorial reports, and material enclosed in brackets [] are supplied by JPRS. Processing indicators such as [Text] or [Excerpt] in the first line of each item, or following the last line of a brief, indicate how the original information was processed. Where no processing indicator is given, the information was summarized or extracted.

Unfamiliar names rendered phonetically or transliterated are enclosed in parentheses. Words or names preceded by a question mark and enclosed in parentheses were not clear in the original but have been supplied as appropriate in context. Other unattributed parenthetical notes within the body of an item originate with the source. Times within items are as given by source.

The contents of this publication in no way represent the policies, views or attitudes of the U.S. Government.

PROCUREMENT OF PUBLICATIONS

JPRS publications may be ordered from the National Technical Information Service, Springfield, Virginia 22161. In ordering, it is recommended that the JPRS number, title, date and author, if applicable, of publication be cited.

Current JPRS publications are announced in Government Reports Announcements issued semi-monthly by the National Technical Information Service, and are listed in the Monthly Catalog of U.S. Government Publications issued by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

Correspondence pertaining to matters other than procurement may be addressed to Joint Publications Research Service, 1000 North Glebe Road, Arlington, Virginia 22201.

NOTICE

A new serial entitled WORLDWIDE REPORT: ARMS CONTROL will be published starting in March 1985.

The new report will contain Soviet, European, and other foreign media reportage and commentary on arms control issues, negotiations, agreements, and treaties. Much of the material will be reprinted from the regional FBIS DAILY REPORTS.

U.S. Government consumers may arrange to receive the new report through regular publications distribution channels or by contacting:

FBIS/Liaison and Requirements
P.O. Box 2604
Washington, D.C. 20013

Other consumers may order the report by contacting:

National Technical Information Service
5285 Port Royal Road
Springfield, VA 22161

26 February 1985

WORLDWIDE REPORT

NUCLEAR DEVELOPMENT AND PROLIFERATION

CONTENTS

ASIA

JAPAN

KYODO Examines JSP Nuclear Policy Dilemma (Natonio Kamiya; KYODO, 19 Jan 85)	1
Briefs	
Antinuclear Groups Stage Hiroshima Sit-in	4
More Nuclear Reactors Authorized	4

PEOPLE'S REPUBLIC OF CHINA

Li Peng Notes 'Major Progress' in Nuclear Field (XINHUA, 8 Jan 85)	5
China's Nuclear-Powered Submarines, Missiles Viewed (Yen Te-wei; KUANG CHIAO CHING, No 147, 16 Dec 84)	6
Purchase of Nuclear Plants From USSR Denied (KYODO, 31 Jan 85)	8
Nuclear Fusion Research Center Completed (XINHUA, 20 Jan 85)	9
Top Officials Discuss Nation's Nuclear Power Policies (XINHUA, various dates)	10
Li Peng on Development	
Banquet Marks Contract Signing	
Deng Xiaoping on Taiwan	
Further Deng Remarks	
Li Peng Reveals Cost	

PRC, Hong Kong Nuclear Power Contract Signed (XINHUA, 18 Jan 85)	14
Zhao Meets Delegation Li Reiterates Nuclear Policy Agreement Signed	
Jiangsu, Liaoning Nuclear Plants To Be Built (XHONGGUO XINWEN SHE, 9 Nov 84)	17
First Domestic High-Flux Reactor Passes Tests (Zhuo Peirong; XINHUA, 12 Nov 84)	18
Vice Minister Discusses Qinshan Nuclear Plant (XINHUA, 24 Jan 85; CHINA DAILY, 26 Jan 85)	19
Zhuo Ping Comments, by Xue Jianhua Plant Designer Comments, by Zheng Fan, Xu Yuanchao	
Li Peng on Developing Nuclear Power Industry (JINGJI RIBAO, 24 Jan 85)	21
Disposal, Use of Nuclear Waste Examined (Teng Teng; Wang Jiading; RENMIN RIBAO, 8 Nov 84)	24
New State Nuclear Safety Bureau Established (ZHONGGUO XINWEN SHE, 9 Nov 84)	27

EAST EUROPE

HUNGARY

Research Reactor To Be Renovated in 1986 (HETI VILAGGAZDASAG, No 50, 15 Dec 84)	29
--	----

YUGOSLAVIA

Zirovski Vrh Uranium Mine Described (Salih Zvizdic; VJESNIK, 9 Dec 84)	32
---	----

LATIN AMERICA

ARGENTINA

Nuclear Institute's Financial Problems Reported (NOTICIAS ARGENTINAS, 5 Feb 85)	36
Economic Factors Should Not Alter Nuclear Plans, Says Daily (LA NUEVA PROVINCIA, 12, 13 Jan 85)	38

Nuclear Industry Layoffs Blamed on IMF Demands (LA VOZ, 11 Jan 85)	42
Nuclear Project Threatened by Financial Problems (Editorial; LA PRENSA, 24 Jan 85)	44
Energy Official Discusses Nuclear Program (Jorge Lapena Interview; CLARIN, 27 Jan 85)	46
CLARIN Interviews Former CNEA Director (Oscar Quihillalt Interview; CLARIN, 27 Jan 85)	47
Foreign Ministry Official on Nuclear Proliferation (NOTICIAS ARGENTINAS, 23 Jan 85)	49
Briefs	
CNEA's Budget Increased	50

BRAZIL

President-Elect Neves on Nuclear Accord With FRG (Tancredo Neves; Radio Bandeirantes, 17 Jan 85)	51
Navy May Have Nuclear Submarine by 1990 (O ESTADO DE SAO PAULO, 21 Dec 84)	52

PERU

Briefs	
Argentina to Refinance Nuclear Project	54

NEAR EAST/SOUTH ASIA

BANGLADESH

Commentary Discusses Nuclear Energy Program (Dhaka Domestic Service, 27 Jan 85)	55
Soviets Reported To Ask Concessions for N-Plant Aid (Jalal Nawaz; THE NEW NATION, 5 Dec 84)	56
Briefs	
Work on Nuclear Reactor	58

INDIA

India To Augment Nuclear Power Production (THE TIMES OF INDIA, 6 Jan 85)	59
Reporter Sees No Change in U.S. Nuclear Equation (THE TIMES OF INDIA, 6 Jan 85)	60

Commentary Discusses Objectives of Nuclear Disarmament Summit (C. V. Vaidyanathan; General Overseas Service, 25 Jan 85)	62
Process for Manufacturing Heavy Water Developed (PATRIOT, 12 Dec 84)	64
AEC Chief Tells of Changes in Reactor Design (THE HINDU, 30 Nov 84)	65
Plans for Midnapore Atomic Power Plant Told (THE STATESMAN, 16 Jan 85)	66
Briefs	
Nuclear Science Center	67
Soviet Reactor Units	67
Power Station Reopens	67
Spares From FRG	67
IRAN	
Over 5,000 Tons of Uranium Reserves Discovered (ETTELA'AT, 12 Jan 85)	68
PAKISTAN	
Action on Nuclear Disarmament Urged (Editorial; DAWN, 3 Feb 85)	70
Karachi Plant Operation Said Satisfactory (DAWN, 20 Jan 85)	72
Briefs	
Plant Earnings Reported	74
SUB-SAHARAN AFRICA	
SOUTH AFRICA	
ESCOM Comments on U.S. Workers at Nuclear Plant (Capital Radio, 21 Jan 85)	75
WEST EUROPE	
EUROPEAN AFFAIRS	
URENCO Gets Enriched Uranium Order From Sweden (NRC HANDELSBLAD, 12 Jan 85)	76

China Interested in URENCO Enrichment Technology (ANP NEWS BULLETIN, 21 Jan 85)	78
--	----

SWEDEN

Steam Generators in Ringhals 2 Unit Must Be Replaced (Dag Bjerke; SVENSKA DAGBLADET, 19 Dec 84)	79
Uranium Enrichment Contract Moved From U.S. to France, UK (Peter Bratt; DAGENS NYHETER, 10 Jan 85)	82

TURKEY

Agreement in Principle for KWU To Build Akkuyu-2 (DUNYA, 18 Jan 85)	84
--	----

JAPAN

KYODO EXAMINES JSP NUCLEAR POLICY DILEMMA

OW191211 Tokyo KYODO in English 1144 GMT 19 Jan 85

[Nuclear policy: "The Horn of Japan Socialists" Dilemma--KYODO headline by Natonio Kamiya, KYODO staff writer]

[Text] Tokyo, 19 Jan, KYODO--Left out in the political cold for most of its 40-year existence, the Japan Socialist Party is facing a big dilemma in its quest for power.

While the largest party in opposition, the JSP finds its initiative as leader of the opposition camp slipping out of its hands as the party's power base erodes away and other opposition parties turn their eyes to the ruling liberal-democratic party for a morsel of power.

"The most important task facing us is to make a bold effort to bring a new life to our party," Chairman Masashi Ishibashi wrote in the latest issue of the party's organ in setting out his vision for the party.

Translated into plain language, what the JSP leader meant was the party must rid of its doctrinaire past and breathe some pragmatism into the party. The goal, as Ishibashi spelled out in the party convention that ended Saturday, is political power through JSP-led coalition, preferably with Komeito, but also with the Democratic Socialist Party as another possible partner.

Ishibashi, who took over the party leadership in September 1983, has been busy setting up his own imprint on the left-wing party, which has never been in power except a brief interlude in 1948.

Ishibashi himself is aware of criticisms waged against his party. Among the sins cited against the JSP, Ishibashi admitted in his article in January issue of party theoretical "Socialist Party," is that JSP always quarrels with itself, and over-reliance on union-power.

Under Ishibashi, the current party leadership has worked hard to rid the party of doctrinaire trappings and turn the JSP from a labor-supported, class-oriented party into a national party.

In a bid to change the party's doctrinaire image, Ishibashi first called the JSP "New Socialist Party," using the English term "new" to mark a fresh start for the JSP, which turned 40 this year.

Under the new party logo, Ishibashi set about to moderate party stand in fundamental issues on defense and nuclear policy.

In a befuddled attempt toward moderation, Ishibashi argued the Japanese self-defense forces (SDF), since its existence based on Diet legislation, are "legal." However, with an eye to the party's left-wing forces, Ishibashi also maintained in the same breath the SDF are "unconstitutional," because the constitution bans armed forces.

The "unconstitutional but legal" stand has befuddled party dissidents. "If something is unconstitutional, it is also illegal," said Socialist Dietman Haremasa Seki.

"The problem with our party is that we always have to compromise with the various forces within the party," Seki noted. "The party leadership ought to make issues clear."

With the country's political tradition firmly rooted on consensus, any attempt to shift party policy is no easy proposition.

Ishibashi once again came eye-to-eye with this political reality when the party leadership attempted to tinker with the party's antinuclear policy.

In what critics charge a policy concession to Komeito, the party leadership proposed to allow existing nuclear plants to continue in operation, subject to strict safeguards in safety and environmental hazards.

The party's antinuclear caucus--spread over 20 of the party's 47 chapters across the country--rose in arms, rejecting any compromise on the party formula. Acrimonious exchanges were traded on the convention floor, and the convention was paralyzed as the party leadership made desperate efforts to hammer out yet another compromise.

"If that is the way the party operates, then I don't know how it is ever to gain power," Seki said.

Ishibashi's efforts toward moderation reflected larger political forces at work in the country's union movement, the JSP's principal support base.

Starting from 1 April, Sohyo, the general council of trade unions of Japan and JSP's most powerful political base, will lose a main constituent member as the government's telecommunications monopoly, Nippon Telegraph and Telephone Public Corp. (NTT), becomes a private enterprise.

The JSP will also find its political base further eroded if the government pushes ahead with a plan to sell the deficit-plagued Japanese national railways to the private sector.

Even without the anticipated realignment of labor's political affiliation, the JSP has undergone a prolonged stagnation in party fortunes.

At present, the party commands 111 members of the 511-seat lower house, down from a peak of 166 seats in the late 1950's. And the party's popular approval rate hovers around 15 percent, according to most recent opinion polls, against some 50 percent for the LDP.

The party leadership has drawn up an ambitious plan to build up popular support and double the party roster from 63,000 to 120,000 in three years. However, the party roster has only gone up by a few hundreds in the 16 months since Ishibashi took over the party reins.

CSO: 5100/4511

JAPAN

BRIEFS

ANTINUCLEAR GROUPS STAGE HIROSHIMA SIT-IN--Hiroshima, 27 Jan (KYODO)--Some 140 "hibakusha"--people suffering the after-effects of atomic attack--staged an hour-long sit-in at the Hiroshima Peace Memorial Park Sunday on the occasion of the 34th anniversary of the start of U.S. tactical nuclear testing in Nevada. The sit-in was organized in response to an appeal from the citizens' call, an antinuclear activists' group in Utah State led by pacifist Janet C. Gordon. The sit-in was sponsored by the Hiroshima Chapter of the Japan Congress Against Atomic and Hydrogen Bombs (Gensuikin) and a council of Korean hibakusha. Ichiro Moritaki, one of the Gensuikin leaders, told the participants that the campaign against nuclear arms is spreading across the world. Yi Sil-kun, leader of the Korean demonstrators, appealed for protests against the U.S.-South Korea joint military exercise Team Spirit '85. [Text] [Tokyo KYODO in English 0851 GMT 27 Jan 85 OW]

MORE NUCLEAR REACTORS AUTHORIZED--Tokyo, 31 Jan (KYODO)--A government advisory council Thursday authorized Kansai Electric Power Co to start construction of Nos 3 and 4 nuclear power reactors with a combined capacity of 2.36 million kilowatts at Oi, Fukui Prefecture, central Japan. The decision came after local residents have approved the project. The public utility plans to complete the No 3 reactor by September 1991, and the No 4 by June 1992 at a total cost of 750 billion yen (3 billion dollars). [Text] [Tokyo KYODO in English 0244 GMT 31 Jan 85 OW]

CSO: 5100/4512

PEOPLE'S REPUBLIC OF CHINA

LI PENG NOTES 'MAJOR PROGRESS' IN NUCLEAR FIELD

OW081510 Beijing XINHUA in English 1458 GMT 8 Jan 85

[Text] Beijing, January 8 (XINHUA) -- China will build its own complete nuclear fuel system and fuel disposal system, said Chinese Vice-Premier Li Peng here today. The vice-premier said that China would mainly rely on its own efforts in building nuclear power plants.

At a working conference of the Ministry of Nuclear Industry, the vice-premier said that the industry would shift from military to civilian purposes mainly to supply nuclear fuel for nuclear power plants.

By the end of this century, China will have nuclear power plants with a total generating capacity of 10 million kilowatts in coastal cities and economically developed regions, he told the conference. He urged scientists and technicians to make greater efforts to reduce nuclear fuel costs and build large nuclear power plants, the first of which will be in Qinshan, Zhejiang Province.

Major progress had been achieved in weapons and civilian products, Li said. He expressed the hope that nuclear technology would be widely used in civilian industry.

At today's meeting the Ministry of the Nuclear Industry gave 16 awards for outstanding achievements in military and civilian products.

CSO: 5100/4130

PEOPLE'S REPUBLIC OF CHINA

CHINA'S NUCLEAR-POWERED SUBMARINES, MISSILES VIEWED

HK270853 Hong Kong KUANG CHIAO CHING in Chinese No 147, 16 Dec 84 pp 16-17

[Article by Yen Te-wei: "A Grand Display of China's Nuclear-Powered Submarines"]

[Text] Starting Development in the 1960's

According to estimates by various sources, China started developing its nuclear-powered propulsion system in the mid-1960's. By that time China had built a "Golf" class diesel ballistic missile submarine, which was built in the Hongqi Shipyard in Dalian. The submarine was completed in 1964, but the Soviet Union did not supply it with any SS-N-4 missiles (A G-class submarine was designed to carry three missiles). Undoubtedly, China took this as a starting point for the development of nuclear-powered ballistic missiles submarines. Improvements in the submarine shell and navigation capability were started in the late 1960's and completed 6-7 years later.

The "Golf" class submarine has a displacement of 2,350 tons when surfaced and 2,850 tons when underwater. It is 321.4 meters long and 27.9 meters wide. In addition to six 533-mm torpedo launching-tubes, the bow is also fitted with three vertical launchers. The submarine sails at a speed of 17 nautical miles per hour when surfaced and 14 nautical miles per hour underwater.

The Disappearance of an Unidentified Submarine

In August 1981, an unidentified "Golf" class submarine, which was carrying out a missile test underwater at that time, was reported "lost" in China's sea area. If that submarine belonged to the Chinese Navy, the question is quite interesting. This is because an SS-N-4 missile can only be launched from the surface while an SS-N-5 missile can be launched underwater. This is to say, the Chinese Navy might have possessed Soviet-made SS-N-5 missiles.

In any case, it is an indisputable fact that China first applied nuclear-powered propulsion equipment to improving attack submarines and succeeded in building "Han" submarines. The first submarine of this type was launched in 1971-72 but was placed in active service 2 years later. According to a Western report, China was confronted with some difficulties in developing the propulsion system of nuclear-powered installation. In 1973 China sent a technological investigation group to West Germany to conduct an extensive inspection of nuclear-powered propulsion systems. It is not known whether the investigation tour was of any help to its work, but the first "Han" submarine completed its trial voyage in 1974-75. The second "Han" submarine was reported completed in 1977.

It was generally estimated that the "Han" submarines have a displacement of about 5,000 tons underwater. They are 330 meters long and 36 meters wide. Propelled by a nuclear reactor, they sail at a speed of about 30 nautical miles per hour with a crew of about 100. According to some reliable sources, China is now building four more "Han" submarines, and the two submarines finished earlier have been assigned to the North Sea Fleet for active service.

The Inside Story of Underwater Ballistic Missile Submarines

After completing the development and testing of "Han" submarines, China immediately started building nuclear-powered missile submarines. Research work is judged to have been carried out in 1978 and the first "Xia" underwater-fired missile submarine was launched around the middle of 1981. The "Xia" nuclear-powered missile submarine is estimated to have a displacement of 8,000 tons when submerged and is 393.6 meters long and 33 meters wide. It is equipped with 12 or 16 CSS-NX (as called in the West) ballistic missiles. Propelled by a set of pressurized nuclear reactors, it sails at an estimated speed of 22 nautical miles per hour.

In the military parade marking the 35th anniversary of the founding of the PRC, China displayed its own underwater ballistic missiles for the first time. The missiles are estimated to be 1.5-1.6 meters in diameter and 10 meters long, with a launching weight of about 20,000 kg. Using two-stage solid fuel, the rocket engine can launch a 1-metric ton nuclear warhead. It is also conjectured that the ballistic missiles have a range of 70 km at a flight speed of mach 0.9.

The first trial launching of the underwater ballistic missiles was conducted on 30 April 1982 at Hulu Island in the Huang Hai. The range was over 1,800 miles. The second trial launching was conducted on 12 October 1982. Both were successful. It is estimated that two "Xia" submarines are now on active service and that China is still building four submarines of this type.

Future Prospects

The Chinese Navy has been concentrating on the development of missiles in recent years. In addition to the underwater ballistic missiles mentioned above, China has been constantly developing coastal defense and antisubmarine tactical missiles. In the recent military parade marking National Day, China displayed a new China-type multiple-use "flying fish" missile, which can be carried by naval vessels, submarines, aircraft, or vehicles and fired flexibly and which can be used as a component part of coastal defense fire. Accurately controlled and guided, this kind of missile can make a low-altitude flight over the surface of the sea and can be fired under complicated conditions. Fitted with an automatic target-seeking system, they can sink large naval vessels bigger than destroyers. By constantly renovating the combat effectiveness and the electronic warfare capabilities of its naval vessels, the Chinese Navy will further develop its strength in the foreseeable future.

CSO: 5100/4130

PEOPLE'S REPUBLIC OF CHINA

PURCHASE OF NUCLEAR PLANTS FROM USSR DENIED

OW310717 Tokyo KYODO in English 0705 GMT 31 Jan 85

[Text] Beijing, Jan. 31 KYODO -- China Thursday denied a press report that the country plans to purchase two nuclear-powered electricity generating facilities from the Soviet Union. The report was understood to have said the purchase was included in the 1986-90 economic and trade agreement concluded by China and the Soviet Union

A Chinese Foreign Trade Ministry official said the report had no ground. Eastern bloc sources here also said that China and the Soviet Union had not conducted talks which might lead to Chinese import of Soviet nuclear plant facilities.

CSO: 5100/4130

PEOPLE'S REPUBLIC OF CHINA

NUCLEAR FUSION RESEARCH CENTER COMPLETED

OW200802 Beijing XINHUA in English 0658 GMT 20 Jan 85

[Text] Hefei, January 20 (XINHUA)--A new center for controlled nuclear fusion and plasma physics research has passed tests by the state here today. The center will open to both Chinese and foreign researchers, said Zhou Guangzhao, vice-president of the Chinese Academy of Sciences.

Construction of the project started in 1980. The new research center consists of five big halls, 30 laboratories and other facilities, covering a floor space of 43,000 square meters.

The major facility, HT-6M controlled nuclear fusion device is a medium-sized tokamak, designed and manufactured by the Institute of Plasma Physics under the Chinese Academy of Sciences. Tests show that all the performances of the device are up to designed requirements.

The Institute of Plasma Physics has also developed magnetic mirror and other magnetically confined nuclear fusion experimental devices and many kinds of plasma heating equipment for thermonuclear plasma physics research.

CSO: 5100/4130

PEOPLE'S REPUBLIC OF CHINA

TOP OFFICIALS DISCUSS NATION'S NUCLEAR POWER POLICIES

Li Peng on Development

OW190234 Beijing XINHUA Domestic Service in Chinese 1454 GMT 18 Jan 85

[Text] Beijing, 18 Jan (XINHUA)--Vice Premier Li Peng granted an interview to XINHUA reporters today in connection with the building of a nuclear power station in Guangdong. The station is a joint venture between Guangdong and Hong Kong.

Question: Would you please explain the content and significance of the contract signed today on building a nuclear power station in Guangdong, a joint venture between Guangdong and Hong Kong?

Answer: The negotiations for the Guangdong nuclear power station were started in 1980. Through the efforts of both sides, Guangdong and Hong Kong recently reached an accord and formally signed the contract in Beijing today. The joint venture is of great significance to both sides.

The Guangdong nuclear power station will be China's first large nuclear power station, with a capacity of 1.8 million kilowatts, and is expected to be completed in 7 years. The construction of the power station marks China's beginning in building large nuclear power stations. It is the biggest joint venture China has undertaken since it implemented the policy of opening to the outside world. Most of the electricity generated by the station will be transmitted to Hong Kong and the rest will be for local use. Therefore, the completion of the station will contribute to the maintenance of Hong Kong's prosperity and stability and Guangdong's economic development.

There is still a great deal of work to be done and difficulties to be solved after the signing of the contract and before the completion of the project. I hope that through the joint efforts of the joint-venture parties, the project will be completed with high quality in a short construction period, at the lowest possible cost, and with high economic efficiency.

Question: Would you also talk about China's policy on developing nuclear power, a question of much concern?

Answer: In view of China's energy resources, China will, in the near future, mainly develop thermal power in addition to hydroelectric power, with

with nuclear power as a supplement. We plan to build a number of nuclear power stations, with a total capacity of 10 million kilowatts by the end of this century, in some economically developed areas that lack energy resources.

Judging from the actual situation in China, we will be able to rely on ourselves for the fuel needed for nuclear power stations in the country, and we will establish a comprehensive nuclear fuel-cycling system. In building the first group of nuclear power stations, we will enter extensive cooperation with other countries. We will import technology as well as equipment, and, through cooperation in production, gradually increase our ability to manufacture nuclear power equipment, thus laying a foundation for further developing nuclear power in our country.

Question: According to reports, China has cooperated or negotiated with other countries on building nuclear power stations. Could you discuss China's nuclear policy?

Answer: Expounding on China's nuclear policy, Premier Zhao Ziyang solemnly declared at the Second Session of the Sixth NPC in May 1984: China is critical of the discriminatory "Treaty on the Nonproliferation of Nuclear Weapons" and has declined to accede to it. But we by no means favor nuclear proliferation, nor do we engage in such proliferation by helping other countries to develop nuclear weapons. Here, I wish to reiterate that China has no intention, either at present or in the future, to help nonnuclear countries develop nuclear weapons. China joined the International Atomic Energy Agency last year and was appointed a council-member country. We will maintain good relations of cooperation with the agency and abide by its stipulations. We have conducted cooperation or negotiations on nuclear energy with France, the FRG, the United States, Brazil, Pakistan, and Japan. China's nuclear cooperation with other countries, either at present or in the future, is confined to peaceful purposes alone.

Banquet Marks Contract Signing

OW181848 Beijing XINHUA in English 1644 GMT 18 Jan 85

[Text] Beijing, January 18 (XINHUA) -- The Guangdong Nuclear Power Investment Company, Ltd., held a banquet here tonight to mark the signing of a contract establishing the Guangdong Nuclear Power Joint Venture Company, Ltd. Among those present were Chinese Vice-Premier Li Peng; State Councillor Song Ping; and a delegation from the Hong Kong Nuclear Investment Company, Ltd. led by Lord Kadoorie, chairman of the China Light and Power Company of Hong Kong.

During negotiations on the joint venture, Li said, "the British Government and Hong Kong authorities have given support and encouragement. Friends from the China Light and Power Company headed by Lord Kadoorie have done a tremendous amount of work for the completion of the joint venture contract. My colleagues and I would like to use this opportunity to express our appreciation."

Li also said he hoped that through joint efforts of the joint venture parties, the Daya Bay nuclear power station would be completed with high quality in a short construction period, at the lowest possible cost and with high economic efficiency.

In reply, Lord Kadoorie said an atmosphere of trust and goodwill had been created which augured well for the future of the new cooperative project.

Referring to the "one country, two systems" concept set forth by Chairman Deng Xiaoping of the Central Advisory Commission of the Chinese Communist Party, Lord Kadoorie said, "this brilliant and far-reaching concept could solve many problems and well be the forerunner of policies."

Deng Xiaoping on Taiwan

OW190656 Beijing XINHUA in English 0648 GMT 19 Jan 85

[Text] Beijing, January 19 (XINHUA) -- Deng Xiaoping, chairman of the Central Advisory Commission of the Chinese Communist Party, said here today that China, in settling the Taiwan question, would take into consideration the interests of the mainland, Taiwan as well as the foreign capital having ties with Taiwan. "We have to consider them all. Otherwise nothing can be achieved," he added.

Deng made this statement at a meeting here this morning with Lord L. Kadoorie, chairman of the China Light and Power Company of Hong Kong, and the delegation from the Hong Kong Nuclear Investment Company Limited he is leading. The delegation is here for the signing yesterday of a contract on setting up a joint venture for the construction of a nuclear power station in Guangdong.

Deng said that in settling the Hong Kong issue, "we took into consideration the interests of China, Britain and the people of Hong Kong, and agreement was finally reached on that." China would offer more generous terms for the settlement of the Taiwan question, namely, Taiwan could retain its Army, he explained.

Further Deng Remarks

OW190756 Beijing XINHUA in English 0730 GMT 19 Jan 85

[Text] Beijing, January 19 (XINHUA) -- Deng Xiaoping, chairman of the Central Advisory Commission of the Chinese Communist Party, told a Hong Kong delegation here today that the co-building of a nuclear power station by Guangdong and Hong Kong "is of tremendous significance to maintaining Hong Kong's prosperity and stability and increasing Hong Kong people's confidence."

He congratulated Lord L. Kadoorie, chairman of the China Light and Power Company of Hong Kong, and the delegation from the Hong Kong Nuclear Investment Company Limited led by him on the formal signing of a contract on the establishment of a joint venture to build a 1,800,000-kilowatt nuclear power station in Guangdong. The project, he said, would exert influences in the course of its seven-year construction and also in the period after China resumed the exercise of sovereignty over Hong Kong in 1997. "It will help bring the mainland and Hong Kong into closer economic ties," he noted.

Lord Kadoorie said that he was very happy to be able to do useful things for China. He also looked forward to greater cooperation with China.

Deng reaffirmed that it was China's long and lasting policy to open itself to the outside world and absorb foreign capital. He went on to say that it was China's first ambitious goal to quadruple its gross annual industrial and agricultural output

value by the end of this century. The next goal was to bring the country to the level of the advanced nations in another 50 years. "To realize these two goals, we have to invigorate the domestic economy and open ourselves to the rest of the world," he added.

This policy, he continued, would not change in this century nor in the first half of next century. By that time, China would have established very close economic ties with other countries, which would be very hard to cut off. "Some people worry that China's open policy might lead to capitalism. If that should come true, it would mean the failure of our policy. We don't think that would happen. Under this policy some capitalist stuff may get into our country, but the socialist force will become stronger and predominant," Deng said.

He turned to Kadoorie and said that China would not see foreign investors suffer losses when they came to undertake cooperative projects. "We hope that both sides make gains. In handling political and economic issues, it won't do just to take into consideration the interests of one side," he added.

"When we negotiated with Britain on the return to China of the sovereignty over Hong Kong, we took into consideration the interests of China, Britain and the Hong Kong people, and agreement was finally reached on that question. Our next step is to solve the Taiwan problem. Our terms for that question are more generous: Taiwan can retain its Army. We must take into consideration the interests of the mainland, Taiwan and the foreign capital having ties with Taiwan. Otherwise, nothing can be achieved.

Kadoorie expressed his appreciation of Deng's proposition, saying that he was sure Taiwan, like Hong Kong, would be reunified with the mainland.

Deng Xiaoping praised Kadoorie for his efforts to cooperate with China, adding: "You have set an example by taking this risk. Hong Kong experienced some fluctuations when China and Britain were negotiating for a settlement of the Hong Kong question. But you and your company adopted a friendly and positive attitude. We are thankful on this score."

"When the Guangdong nuclear power station is completed in seven years," he went on, "you will be 93 and I shall be 87. We can arrange a celebration by then." The meeting lasted more than an hour. Chinese Vice-Premier Li Peng was present on the occasion.

Li Peng Reveals Cost

OW211302 Beijing XINHUA in English 1247 GMT 21 Jan 85

[Text] Beijing, January 21 (XINHUA) -- The projected Guangdong nuclear power station will cost three and half to four billion U.S. dollars, announced Chinese Vice-Premier Li Peng here today. A contract for establishing a joint venture for the construction of the power station, in Guangdong's Daya Bay, was signed three days ago by the Chinese side and the China Light and Power Co. Ltd., Hong Kong.

Li Peng made the announcement at a meeting with Ricardo Camara, former deputy director of the Argentine newspaper TIEMPO in the great hall of the people here this afternoon.

It is learned that China is to raise 300 million U.S. dollars for the project, while Britain and Hong Kong will raise 100 million. France has agreed to offer credit loans for the purchase of French equipment. The Guangdong nuclear power station with a capacity of 1.8 million kilowatts, is the biggest cooperative project ever launched by China. It is also the biggest nuclear power station to be built in the country.

PEOPLE'S REPUBLIC OF CHINA

PRC, HONG KONG NUCLEAR POWER CONTRACT SIGNED

Zhao Meets Delegation

OW181104 Beijing XINHUA in English 1047 GMT 18 Jan 85

[Text] Beijing, January 18 (XINHUA) -- Premier Zhao Ziyang told a visiting delegation from the Hong Kong Nuclear Power Investment Company here today that it was of great significance and a good start to sign a contract on Guangdong-Hong Kong nuclear power station soon after the signing of the Sino-British Joint Declaration on Hong Kong. The delegation, headed by Lord L. Kadoorie, president of the China Light and Power Co. Ltd. has come here to sign the contract on the establishment of a joint venture for the construction of the Guangdong nuclear power station.

Zhao Ziyang said that there was a bright future for economic and technical cooperation between Hong Kong and the mainland following the removal of the political obstacle between China and Britain.

Lord Kadoorie expressed the hope that today's cooperation would lead to more and greater cooperation and that the cooperation in building the nuclear power station would herald more cooperative projects.

Zhao said that the Chinese Government attached great importance to the nuclear power station project which is the biggest joint venture undertaken by China since it opened itself to the outside world. It is also the country's first nuclear power station with a capacity of over one million kilowatts, he added.

"Through this project," he added, "we can gain experience in construction and management. This cooperative project will exert a big impact on both China's four modernizations and Hong Kong's economic prosperity."

The premier pointed out that the China Light and Power Company Limited of Hong Kong, in undertaking this nuclear power station project, would stimulate more Hong Kong and foreign entrepreneurs to invest in China or enter into various forms of cooperation with China.

Lord Kadoorie said that the present project was a link in a chain of cooperative projects. He pledged all-out effort to make the project a success.

Chinese Vice-Premier Li Peng was present at the meeting.

Li Reiterates Nuclear Policy

OW180954 Beijing XINHUA in English 0935 GMT 18 Jan 85

[Text] Beijing, January 18 (XINHUA) -- Chinese Vice-Premier Li Peng reiterated here today that China had no intention, either at present or in the future, to help non-nuclear countries to develop nuclear weapons and would abide by the stipulations of the International Atomic Energy Agency. He stressed that China's nuclear cooperation with other countries was confined to peaceful purposes alone.

Li Peng made this statement in an interview with XINHUA before the signing of a contract on building a nuclear power station in Guangdong, a joint venture of Guangdong and Hong Kong. The vice-premier said that the construction of the power station marked China's beginning in building large nuclear power station. It is the biggest joint venture China has ever undertaken since it implemented the policy of opening to the outside world, he added.

Li said China was cooperating or discussing cooperation in nuclear energy with France, the Federal Republic of Germany, the United States, Brazil, Pakistan and Japan.

On China's nuclear policy, he said that Premier Zhao Ziyang declared at the Second Session of the Sixth National People's Congress held in May 1984 that China was critical of the discriminatory "treaty on the non-proliferation of nuclear weapons" and had declined to accede to it, and that, on the other hand, China by no means favored nuclear proliferation, nor did it engage in such proliferation by helping other countries develop nuclear weapons.

Li Peng said: "I would like to reiterate here that we have no intention, either at present or in the future, to help non-nuclear countries develop nuclear weapons."

He said: "Last year, China joined the International Atomic Energy Agency and was appointed a council member country. China will maintain good relations of cooperation with the agency and commit itself to its due obligations and abide by the agency's stipulations."

Asked about China's policy on developing nuclear power, Li said that in view of its energy resources, China would, in the near future, mainly develop thermal power in addition to hydraulic power, with nuclear power as a supplement.

He said that China would rely on itself for the fuel needed by its nuclear power stations and establish a comprehensive nuclear fuel cycling system.

In building the first batch of such stations, the vice-premier noted, China would enter extensive cooperation with other countries. It would import technology as well as equipment, and, through co-production, gradually increase its ability to manufacture nuclear power equipment, thus laying a foundation for its further development of nuclear power.

Agreement Signed

OW180956 Beijing XINHUA in English 0943 GMT 18 Jan 85

[Text] Beijing, January 18 (XINHUA) -- A contract on setting up a joint venture for the construction of China's first big nuclear power station in Guangdong was signed here this afternoon. The contract was signed by Zhao Qingfu, vice-minister of water resources and electric power and acting chairman of the Guangdong Nuclear Power Joint Venture Company Limited, and W. Stones, chairman of the Hong Kong Nuclear Power Investment Company, Chinese Vice-Premier Li Peng attended the signing ceremony.

Located at Guangdong's Daya Bay, the project with a capacity of 1.8 million kilowatts is expected to complete in seven years. Seventy percent of the electricity generated by the station will be transmitted to Hong Kong, and the rest will be for local use. Officials here said that the construction of the nuclear power station would contribute to the maintenance of Hong Kong's prosperity and stability and Guangdong Province's economic development.

It is learnt that China plans to build, in economically developed areas lacking energy resources, a number of nuclear power stations with a combined capacity of 10 million kilowatts by the end of this century.

CSO: 5100/4130

PEOPLE'S REPUBLIC OF CHINA

JIANGSU, LIAONING NUCLEAR PLANTS TO BE BUILT

HK110546 Beijing XHONGGUO XINWEN SHE in Chinese 1417 GMT 9 Nov 84

[Text] Beijing, 9 Nov (ZHONGGUO XINWEN SHE) -- Aside from the Qinshan nuclear power plant in Zhejiang and the Guangdong plant, which are both currently under construction, China has also formally decided to build a nuclear power plant in Jiangsu Province and another one in Liaoning Province.

This was revealed in Beijing today by Wu Xing, spokesman of the State Science and Technology Commission, at a press conference attended by Chinese and foreign reporters. He said that the installed capacity of the Jiangsu nuclear power plant will be 2 X 1 million kw. The main items of equipment for these two plants will be imported from abroad. It has not yet been decided which companies will supply the equipment. A number of French, Japanese, and American companies have put forward proposals on supplying this equipment to China.

Wu Xing said that China now plans to build five nuclear power plants. Apart from the four mentioned above, there is the Jinshan thermonuclear power plant at Shanghai. The thermal power of this plant will be 450,000 kw, and it will be mainly used to supply heat and power to the Shanghai petrochemical general plant. The installed capacity of the Zhejiang Qinshan nuclear power plant will be 300,000 kw. The main items of equipment for the Jinshan and Qinshan plants will be made in China.

CSO: 5100/4131

PEOPLE'S REPUBLIC OF CHINA

FIRST DOMESTIC HIGH-FLUX REACTOR PASSES TESTS

OW130831 Beijing XINHUA Domestic Service in Chinese 0848 GMT 12 Nov 84

[By reporter Zhuo Peirong]

[Text] Chengdu, 12 Nov (XINHUA) -- Since its high-performance run at the end of 1980, the first high-flux nuclear reactor designed and built in China has been running safely for more than 3 years. It has successfully passed nearly 100 operational tests closely related to economic construction and the people's livelihood. Its products are now being used in many fields.

The reactor is built according to a design provided by the Southwest Engineering Research and Designing Institute for Reactors under the Ministry of Nuclear Industry. During the past 3 years and more, the reactor has used up eight loads of nuclear fuel. It is now using its ninth load. Facts show that the reactor's design is a success and that its main indices are of advanced nature. Its various operational data and characteristics are now available after it has gone through a large number of tests in the field of physics, hydraulics, and thermodynamics. The various radioactive isotopes and the transplutonium element produced by this reactor have already been used in many fields including medicine, scientific research, and the food industry. More than 40 radiation centers are being built or have been built throughout the country to make use of its radioactive isotopes for livestock breeding and keeping food fresh. Measurements conducted near the reactor show that its radioactive levels are far lower than those specified by the state, thanks to safety and protective measures taken by the local authorities.

CSO: 5100/4131

PEOPLE'S REPUBLIC OF CHINA

VICE MINISTER DISCUSSES QINSHAN NUCLEAR PLANT

Zhou Ping Comments

HK250351 Beijing XINHUA Hong Kong Service in Chinese 0241 GMT 24 Jan 85

[Report by Xue Jianhua: "Zhou Ping, Vice Minister of Nuclear Industry, on the Qinshan Nuclear Power Station" -- XINHUA headline -- item handwritten]

[Text] Beijing, 24 Jan (XINHUA) -- Zhou Ping, vice minister of nuclear industry, said that the China-designed and built Qinshan nuclear power station in Zhejiang is an important step in materializing large, China-built nuclear power stations. Zhou Ping made these remarks in an interview with this reporter on the formal start of the principal projects of Qinshan nuclear power station today.

The Qinshan nuclear power station, which was planned in the mid-1970's, is the first compressed-water reactor nuclear power station designed and built by China. Its installed capacity will be 300,000 kilowatts. It is expected that the nuclear power station will be completed and put into operation in 1989. Presently the excavation project for the base of the nuclear island of the power station has been completed, and the construction of the principal projects for the reactors starts today.

Vice Minister Zhou Ping said: China's principle for developing nuclear power stations is to introduce foreign technology while buying complete equipment for large nuclear power stations from foreign countries and to gradually improve China's ability to manufacture nuclear power equipment through cooperative production to enable China to build large nuclear power stations on its own. For this reason, it is necessary to improve our ability to absorb foreign technology. In this connection, the significance of the Qinshan nuclear power station will extend far beyond generating 300,000 kilowatts of electricity.

Zhou Ping stated: Through the practice of building the Qinshan nuclear power station, China will acquire an all-round and profound understanding of the technology, design, materials, equipment, construction, installation, debugging, and operation of nuclear power stations. In this way China will improve its ability to absorb and digest foreign technology.

Vice Minister Zhou Ping, who is in charge of nuclear industrial research and production, is China's famous specialist in reactor engineering. He is a board member of the International Atomic Energy Agency. He said that now the world is paying attention to the study of the economic use of medium-sized and small nuclear power stations, maintaining that building medium-sized and small nuclear power stations in remote regions,

in regions lacking energy, or in regions where the capacity of the electricity network is low has the advantages of safety, convenience, short construction periods, small investment, and good economic results. Therefore, building the Qinshan nuclear power station will not only improve the situation in eastern China, where energy is short, but will also lay a certain foundation for developing medium-sized and small nuclear power stations in China.

In reference to the distribution and prospects for China's nuclear power stations, Zhou Ping said: China has declared that a number of nuclear power stations will be built in economically developed regions which are poor in energy resources and that by the end of this century, these power stations will generate 10 million kilowatts of electricity, equivalent to 10 nuclear power stations with generating units of 1 million kilowatts each. The Daya Bay nuclear power station, which will be jointly built by Guangdong and Hong Kong, is one of these power stations. Large nuclear power stations of this type will be built in southern Jiangsu and northeastern China. In this way China will basically be able to manufacture complete equipment for large nuclear power stations after the completion of three or four large reactors.

Plant Designer Comments

HK260145 Beijing CHINA DAILY in English 26 Jan 85 p 1

[By staff reporter Zheng Fan and Xu Yuanchao]

[Text] Haiyan, Zhejiang -- Construction of China's first domestically designed nuclear power plant began here yesterday. The Qinshan Nuclear Power Plant is designed to generate 2 billion kilowatt hours of electricity a year. It is expected to start up in June 1989. Located on the northern shore of Hangzhou Bay, it is 92 kilometres northeast of Hangzhou and 126 kilometres southwest of Shanghai, China's largest industrial city. Now under construction are buildings for the plant's 300-megawatt pressurized water nuclear reactor, fuel-treatment system, central control, turbine generator and reactor auxiliary facilities.

A ceremony was held here yesterday by the Ministry of Nuclear Industry and Qinshan Nuclear Power Plant officials to lay the plant's corner-stone.

CSO: 5100/4131

PEOPLE'S REPUBLIC OF CHINA

LI PENG ON DEVELOPING NUCLEAR POWER INDUSTRY

HK300703 Beijing JINGJI RIBAO in Chinese 24 Jan 85 p 2

[Report: "Li Peng Says: In Switching the Nuclear Industry to Civilian Uses, Operations Should Be Diversified With the Main Emphasis on Nuclear Power"]

[Text] When giving a speech to a work conference held by the Ministry of Nuclear Industry on 8 January, Li Peng, vice premier of the State Council pointed out: In switching the nuclear industry to civilian uses, operations should be diversified with emphasis on the development of the nuclear power industry. The main civilian services provided by the Ministry of Nuclear Industry should be the building of nuclear power stations.

Li Peng said: When our country is speeding up the economic structural reform and the modernization process, the defense industrial departments should take action to pitch in with civilian construction. A few years ago we required the Ministry of Nuclear Industry to shift more efforts to civilian production while ensuring military production and increasing the output of civilian products. Viewed from today's situation, we should affirm the correctness of this principle. However, today's situation has required the Ministry of Nuclear Industry and other defense industrial and research departments to shift more of their strength to civilian production or to "take civilian production as their main tasks." They should arrange their work in accordance with this new principle. In order to shift military production into civilian production, there should be two conditions: First, the advantages of a military industrial department should be brought into full play, and the products it produces must be readily marketable. It is necessary to give play to the advantageous conditions in technology, equipment, geographic locations, and cooperative relations in society in the production of goods that are needed for the national economy and the people's livelihood. To ensure the marketability of our goods, we should not decide production merely according to our wishful thinking or rely completely on state orders and state purchases. Instead, we must pay special attention to the economic results. This is a major issue for all enterprises engaged in military production. Previously, as they mainly produced military supplies, although they had to pay attention to prices and other economic factors, they were in fact not strictly required to ensure good economic results in their operations. The products must be attractive and competitive on the markets. Only thus can they have a firm hold on the markets. They must not only be of good quality, but also must be low priced. To effect this, we must conduct cost accounting; otherwise, we will lose our competitiveness.

Li Peng said: In the course of shifting its military production to civilian production, the main task for the Ministry of Nuclear Industry is to provide services for the building of nuclear power stations.

The ministry possesses a complete system for processing nuclear materials from exploring and exploiting uranium mines, smelting ore, and enriching uranium materials to manufacturing nuclear fuel cells and post-processing irradiative cells. In the past, this system only served military purposes. Now, it will be shifted to the purpose of contributing to the development of the national economy, and first of all, contributing to the building of nuclear power stations. Since the whole equipment of the Ministry of Nuclear Industry is based on the above-mentioned system for processing nuclear materials, it should act as a nuclear fuel supplier for nuclear power stations.

The advantages of nuclear electric generation are: First, the fuel needed by the power stations needs just a small transport capacity; and second, the cost of nuclear-generated power is lower than power generated by thermal power stations. These are facts which generally exist in all parts of the world. However, to build nuclear power stations, our country now has to import some equipment which is quite expensive, and this makes the cost of nuclear power stations and nuclear-generated electricity higher than the average world level. Coupled with the comparatively high cost of our nuclear fuel, the present price of nuclear-generated electricity in our country can produce some key equipment for nuclear power stations on its own and can lower the cost of the nuclear fuel through technological transformation, and the cost of nuclear-generated electricity in our country will then be lower than that of the electric power generated by thermal power stations. Our principles for developing nuclear electric generation are: First, nuclear fuel needed by the power stations must be mainly supplied by our own enterprises; and second, we must gradually establish a complete nuclear fuel circulation system, including the equipment for reprocessing nuclear fuel. At present, we can only reprocess the nuclear fuel residue from our country or the nuclear fuel residue returned by other countries after they have used our exported fuel.

On the matter of building nuclear power stations, Li Peng said: Because the finished product of nuclear power stations is electricity, their operations are closely related to the system of the power industry. Therefore, the state decides that the responsibility for the construction of large-scale nuclear power stations should be borne mainly by the Ministry of Water Resources and Electric Power. However, the construction of the nuclear island of the power stations should be undertaken by the Ministry of Nuclear Industry. Capital construction projects in our country have generally adopted in the nuclear power station construction projects. At the same time, the economic responsibility system should also be adopted. Now, the Qinshan Nuclear Power Station constructed by the Ministry of Nuclear Industry itself has gotten off to a good start, and last year's construction tasks were fulfilled quite well. The Ministry of Nuclear Industry must make the Qinshan Nuclear Power Station a success and step up its preparations for the construction of a few other large-scale nuclear power stations in the future. In the course of handling this work, it will accumulate experience and train more qualified technical personnel.

In conclusion, Li Peng said: The Ministry of Nuclear Industry should mainly engage in nuclear industry and at the same time diversify its operations to serve society and contribute to the development of the national economy. Nuclear technology should be applied to all fields of the national economy and social life, and new ground should be broken to produce goods that are needed for the four modernizations and provide new technology for various economic sectors. The transfer of technology can be based on a compensable basis. In this regard, the Ministry of Nuclear Industry will certainly be able to develop its ability to the fullest. For example, the technology for exploiting uranium mines can be applied to exploiting coal mines and nonferrous metal mines.

Of course, the state is responsible for coordinating and arranging technological transfers between different departments. Civilian construction is an area full of promise. It is necessary to choose the correct areas that are close to one's original operations so as to ensure that existing technology and equipment may be fully brought into play. The Ministry of Nuclear Industry should change itself from a department exclusively specializing in making weapons into a comprehensive department engaged in the energy industry and in a cross-section of industries in society. That is, it should develop itself in a horizontal direction so as to make itself more dynamic in economic activities. To achieve this purpose, reform is necessary, especially in the ideological and organizational fields. That is to say, we should rely first on reform and second on technological progress and our favorable conditions. Industry in modern society must break through the closed condition and the operational form of handling a single product. Many large companies in the world have been developing horizontally into comprehensive enterprises that are engaged in widely diversified operations. Why must they widely diversify their business? First, their products have to face fierce competition, and the markets for a specific product may alternate between boom and bust. If a company's business is diversified, it will be easier to maintain the stability in its business operations on the whole. Second, diversified operations enable a great deal of manifold equipment, especially large-scale equipment, to operate at its full capacity. This will effectively enhance the enterprise's economic efficiency. Third, diversification can give full play to the large number of technically talented people in all fields. Our country's industry, especially the military industry, also faces a similar issue. Horizontal development and diversification represent the trend of the times and a necessity determined by the current situation. The Ministry of Nuclear Industry, as well as other industrial departments, should pay full attention to this matter.

CSO: 5100/4131

PEOPLE'S REPUBLIC OF CHINA

DISPOSAL, USE OF NUCLEAR WASTE EXAMINED

HK130220 Beijing RENMIN RIBAO in Chinese 8 Nov 84 p 5

[Article by Teng Teng, professor and vice president of Qinghua University, and Wang Jiading, professor and vice chairman of the Academic Committee of Qinghua University: "Tentative Discussion on the Disposal and Utilization of 'Nuclear Waste'"]

[Text] Our country has decided to develop nuclear power stations on an appropriate scale. By the end of this century, a large number of large pressurized-water reactor nuclear power stations will be put into operation.

This will give rise to the problem of disposing of spent nuclear fuels. In order to build a complete nuclear fuel cycle system in our country, the posttreatment of nuclear fuels and the final disposal of radioactive waste are indispensable no matter whether we look at the question from the angle of utilizing uranium resources or from the angle of safety.

It is necessary for pressurized-water reactor nuclear power stations to continuously discharge used fuel and be replenished with new fuel. The new fuel is low-enriched uranium, about 3.2 percent uranium-235 and 96.8 percent uranium-238. After combustion in the pressurized-water reactor, about 0.76 percent of the uranium-235, about 94.3 percent of the uranium-238, and other radioactive elements and fission products such as plutonium, neptunium, americium, and curium remain. These nuclides are highly radioactive, but most of them are very useful. The task of post-treatment is to separate, by chemical means, the used fuels into uranium, plutonium, and highly radioactive waste. The uranium and plutonium recovered are used to make nuclear fuel components to be reused in the reactor. The highly-radioactive waste is separated or directly solidified so that they can be safely disposed of. As far as the nuclear fuel is concerned, this forms a closed cycle, which is both economical and safe.

At present, many countries that are developing nuclear power stand for the use of a close fuel cycle and for using the plutonium obtained from the pressurized-water reactor as fast neutrons to breed the fuel in the reactor. This is very important to our country, which still does not have a very great capacity for developing uranium resources. Many countries have already mastered the posttreatment technology for spent fuels in pressurized water reactor nuclear power stations. Our country has many years of experience in the posttreatment technology in the Army and in the past few years, studies have also been carried out in many aspects of the posttreatment technology for fuels of pressurized-water reactors. With some effort, this technology can certainly be completely mastered before long.

The highly-radioactive materials from the posttreated spent nuclear fuels consist of transuranic elements and fission products such as neptunium, americium, and curium. They can be disposed of in two ways.

The first way is to directly turn the waste materials into glass blocks and bury them deep underground so that they will be kept isolated from the biosphere until they are harmless. This technology of solidifying highly-radioactive waste materials with glass is relatively developed. Many years of study have shown that this is a most realistic method. The volume of glass blocks that have solidified highly-radioactive waste from a 1 million-kw nuclear station each year is only about 2.5 to 3 cubic meters. These blocks are sealed in metal vessels and are buried in rock salt or crystalline rock stratum several hundred meters to over a thousand meters underground. Surrounding them is a layer of bentonite or clay which has great capacity for ion exchange. According to calculations, even if faulting occurs and underground water reached them, it would take hundreds of thousands of years before the radioactive materials could diffuse to the ground surface.

In order to further increase the safety of final disposal, scientists are studying another way -- the separation-transmutation method for eliminating transuranic elements. A highly-effective extracting agent is used to separate the neptunium, americium, curium, and other transuranic elements from the highly-radioactive waste, which is then sent back to the reactor to be transmuted into short-life and low-toxic nuclides. In this way, mainly strontium-90 whose half-life period is 28 years, and cesium-137, whose half-life period is 30 years, are left in the waste materials.

After about 20 half-life periods (600 years), the radioactivity will have lowered to a level not harmful to humans. If strontium and cesium are also extracted, the half-life periods of the remaining nuclides will at most be 2 to 3 years, and they would become harmless in several decades. The studies on recovery of transuranic elements and fragmentation isotopes from the highly-radioactive waste and on their relevant applications are very important questions. On the one hand, they help turn harm into good and turn waste into treasure. On the other hand, they help make the final disposal of highly-radioactive waste easier and safer. Various countries are energetically exploring this field.

The range of applications of transuranic elements and fragmentation isotopes are roughly as follows: 1. Sometimes spent fuel components can be used as sources of radioactivity. In some foreign countries, people have carried out vulcanization tests on tires using spent fuel components as sources of radioactivity. Some people have also used mixed fission products with standard packaging as sources of radioactivity and heat. These sources of radioactivity can be used in radioactive chemistry studies, sterilization of medical articles, and sewage treatment in cities. The cost of these sources of radioactivity is only 3 to 5 percent of that of ordinary sources of radioactivity.

2. The extracted transuranic elements have many uses. For example, the plutonium-238 made from neptunium-237 can be used for small atomic heat sources (such an atomic heat source was used on the Apollo moon-landing rocket) and atomic batteries (such batteries can be used in spaceflight, navigation, and heart pacemakers). Americium-241 is a very good alpha radioaction source which can be used in static electricity eliminators, smoke alarms, the preparation of neutron sources, and in other instruments for control and measurement. Americium-241 and curium-244 are target materials of posttransplutonium elements.

3. Cesium-137, when used as a gamma source, gives better protection and has a longer service life than cobalt-60. In addition to using it for irradiation breeding, food preservation, and radioactive sterilization, the United States has also used it for irradiating soil at a low cost and with safety and reliability. Strontium-90 can be used as an isotopic energy source for unmanned meteorological stations, for telecommunication in remote areas, and in underwater installations. This is strong and reliable energy source.

4. Nuclide cesium-137, strontium-90, promethium-147, and krypton-85 in fission products can be used in various types of radioactive isotope ray instruments such as thickness meters, density meters, material meters, leak detectors, and flaw detectors. These meters are of great significance in raising the quality of products, reducing labor intensity of workers, and automatic control over production. Promethium-147 can be used as an activator in the manufacture of long-life luminescent powder, and krypton-85 can be used on luminescent signals.

5. The noble metals rhodium and palladium contained in the fission products can serve many purposes in the petrochemical industry, the electronics industry, and environmental protection departments.

With the scientific practice of the past scores of years, scientific and technological personnel have a thorough understanding of the side-effects of nuclear energy. Compared with other industries, the nuclear industry is relatively safe. Foreign statistics have shown that the possibility of death in nuclear accidents is less than that in any other kind of accidents. Even in the serious accident that occurred at the "Three Mile Island" nuclear power station, no one was killed. The amount of radiation received by residents within an 80-km radius was only equivalent to that received during a flight of about 2 hours from Beijing to Shanghai. There has been no major radiation accident in post-treatment plants in China or in foreign countries for many years.

CSO: 5100/4130

PEOPLE'S REPUBLIC OF CHINA

NEW STATE NUCLEAR SAFETY BUREAU ESTABLISHED

HK121035 Beijing ZHONGGUO XINWEN SHE in Chinese 1020 GMT 9 Nov 84

[Report: "China Sets Up State Nuclear Safety Bureau" -- ZHONGGUO XINWEN SHE headline]

[Text] Beijing, 9 Nov (ZHONGGUO XINWEN SHE) -- Wu Xing, spokesman for China's State Science and Technology Commission, today announced that China has established a State Bureau of Nuclear Safety. Jiang Shenjie, a well-known expert in the nuclear chemical industry, is to be its first chief.

Wu Xing announced the news at a press conference attended by both Chinese and foreign reporters. He said that the State Bureau of Nuclear Safety, will examine the safety of China's civil nuclear facilities, supervise them, and administer them according to the state's relevant laws, decrees, orders, and regulations, and will organize research into nuclear safety. The bureau is a government power organ directly subordinate to the State Council.

The chief duties of the State Bureau of Nuclear Safety are: to be responsible for drafting the state's basic law on atomic energy; to organize the drafting and formulation of the laws, regulations, guidelines, and standards concerning the safety of civil nuclear facilities; to introduce rigorous and effective procedures for examining safety; to examine the safety of the civil nuclear facilities built by ourselves and of those imported from abroad; and to issue construction permits and operation licenses; to inspect and supervise the safety work of those civil nuclear facilities whose construction and operation have been approved; to organize the departments concerned and the localities to launch scientific research into the safety and management of civil nuclear facilities; and to carry out international exchanges and cooperation in the nuclear safety field.

Wu Xing said that the work of the State Bureau of Nuclear Safety is aimed at ensuring public safety and the personal safety of the workers inside the plants, protecting the environment, and protecting civil nuclear facilities from sabotage as much as possible, whether nuclear facilities are operating normally or accidents or natural disasters occur.

A Hong Kong reporter asked: What measures have been taken to ensure the safety of the Guangdong nuclear power plant?

Wu Xing answered: At present we are examining the safety facilities of the Guangdong nuclear power plant. We are also examining their sizes and the safety of the imported facilities.

The reporter asked: China has applied nuclear energy for a long time. Why did China wait so long to establish a nuclear safety bureau?

Wu answered that China has just begun its large-scale application of nuclear energy and large-scale construction of nuclear power plants. Thus, the present is an appropriate time to establish a nuclear safety bureau.

The reporter asked: In formulating nuclear safety standards, which countries will China use as guides?

Wu answered: China joined the International Atomic Energy Agency [IAEA] this year. China will take an active part in the safety activities organized by the IAEA. In addition, China will also strive for the agency's support and help in the areas of safety examination, research, and training of personnel. In formulating safety standards, China has drawn on the experience of the United States, Japan, and the Federal Republic of Germany. One cannot say the bureau is modeled after any one country's.

CSO: 5100/4131

HUNGARY

RESEARCH REACTOR TO BE RENOVATED IN 1986

Budapest HETI VILAGGAZDASAG in Hungarian No 50, 15 Dec 84 p 10

[Unsigned article: "The Future of Paks"]

[Text] The Paks nuclear power plant has hardly passed school age, so it would be too early to deal with its retirement--we might say, but the experts are already working on this problem as well. The pioneer in Hungary also will be a research reactor, the type VVRSZ reactor which has been operating for 25 years in the Central Physics Research Institute [KFKI] in Budapest and the reconstruction of which according to the plans will begin in 2 years, in 1986. During the course of reconstruction the entire primary circuit including the active zone will be rebuilt and a new type of heating element will be built into the reactor. (That part of the reactor is called the active zone where the chain reaction takes place. This is where the fissionable material is, and the retarder water which at the same time can also fulfill the role of cooling medium, that is, heat transfer material. The primary cycle includes the reactor vessel which contains the active zone, and also the circulating pump, the heat exchanger, as well as the piping which connects all these. By the way, the primary circuit meets the secondary circuit in the heat exchanger, heats up the water circulated there and this water in turn drives the turbine. The primary and secondary cycles are isolated from each other, any possible radioactive radiation cannot cross over into the secondary circuit.)

The KFKI's reactor instead of its present 5 megawatts will after its reconstruction operate with 20 megawatts capacity and will offer significantly better isotope production and experimental possibilities. In the first stage of reconstruction the active zone's structures and the primary circuit will be dismantled. All this will be done with domestic resources, the dismantling schedule has already been prepared and its cost is estimated at about 10 million forints. This is barely a percent or two of the total cost of the reconstruction investment. The component parts to be removed are to a greater or lesser extent contaminated by radioactivity.

The lines and equipment of the primary circuit, made mostly of stainless steel and to a lesser extent of aluminum, contain only surface contamination. These can be removed after being washed down with chemicals. After that they will be placed into inside storage in the reactor building. There the materials will be subjected to radiation control tests and if they are no longer dangerous they will be packaged and carted away for use as needed.

The active zone's structural elements are radioactive, and this contamination cannot be removed by washing. After disassembly these are also prepared in the inside storage of the reactor building for transportation by the institute's radiation control service and under the KOJAL's [Public Health and Medical Clinic for Contagious Diseases] supervision. Radiation control is achieved by suitable surface protection, for example, painting and packaging. Materials thus prepared are then taken to the waste storage facility in Puspokszilagy where they will be under safe circumstances.

Hungary is the first one among the socialist countries to undertake such a task. The experience gained during the work can expect to enjoy general interest in the entire CEMA. Therefore the KFKI's experts consider the entire series of operations and the technology of the various steps to be saleable know-how.

Compared with this the problem of the Paks nuclear power plant is rather distant. Concrete profitability calculations have not yet been performed in connection with the work which will not take place for at least 35-40 years, such studies are just now being placed on the agenda even at the CEMA level. It has not yet been decided whether money for the future expenses will be collected from the price of the current--as, for example, is done in Switzerland--or if the budget will foot the bill--as, for example, will be done in France--but the view in professional circles is that the latter variation is more probable.

At the present time the experts do not consider it feasible to reconstruct the Paks nuclear power plant in the future. But on the other hand they also consider "burial"--encasement of the reactor parts in cement--to be out of the question. In Hungary practically speaking there is no plot suitable for major investments any more which could be left idle for a long period of time. Therefore it can be taken for certain that the Paks nuclear power plant will be disassembled when the time comes. First the fuel will be removed from it, then disassembly and removal will begin in 3-5 years, and finally the land will be released when clean and suitable for new utilization. Today there are only estimates about the possible costs.

It can be assumed that 35-40 years from now plenty of demolition experience will be available from abroad since by that time the one in Paks will be about the 250th nuclear power plant in the world to be dismantled and even within the CEMA it will be at least the tenth one among the ones of the same type to reach retirement age. They are also expecting professional advice from the IAEA [International Atomic Energy Agency] and mainly, cooperation within the CEMA. Operators and design institutions of the socialist countries are currently embarking on a joint research program to clarify the technical questions.

For the time being they continue to store the spent fuel in the power plant under water in a tank built for this purpose. Later it will be returned to the Soviet Union. Fuel removed at the time of dismantling will have the same fate. The so-called low and medium activity wastes which have less radiation than this are for the time being also kept on the power plant's site, under suitably secure conditions. For example, the used protective suits, wiping rags, which

after a short time represent no danger are considered low activity wastes. Medium activity wastes are, for example, the spent water and air filter materials, which for storage are embedded into cement, borosilicate glass or bitumen. The authorities are now studying where to place later these only slightly dangerous wastes which will remain in Hungary. The most probable solution is that in this country too an abandoned mine will be designated for this purpose somewhere. It is certain that nonreuseable wastes generated by dismantling will be placed into such a "cemetery."

8584

CSO: 5100/3006

YUGOSLAVIA

ZIROVSKI VRH URANIUM MINE DESCRIBED

Zagreb VJESNIK in Serbo-Croatian 9 Dec 84 p 3

[Article by Salih Zvizdic]

[Text] Here we are on Zirovski Vrh, a wooded mountain range which will be on all the world maps showing deposits of uranium ore. It is an exciting feeling to know that you are in a uranium mine. Not only because there are signs everywhere saying "nevarnost sevanja" (radiation danger), but also because this is our first uranium mine. Will there be more of them? It is possible, but uranium mines are not easy to come by.

Explorations began in Yugoslavia 24 years ago, and so far the geologists--on foot, from airplanes, with special devices--have covered more than 60,000 km² of our country. They also found some more at Kalna in eastern Serbia, and a mine was opened, but it was shut down because of the low grade of the ore. There were also certain signs of uranium ore in the hills of Macedonia, and then in the Kalnik--Bilo--Gora Mountains in Croatia. But out of all that Zirovski Vrh, in Slovenia, is the only bird in hand.

Engineer Dusan Pensa, director of the Zirovski Vrh Uranium Mine (RUZV) in the process of establishment, says that this mine can produce enough fuel every year for annual replacement of the Krsko Nuclear Power Plant. They are also counting on the mine's expansion and indeed even fuel for a future nuclear power plant at Prevlaka near Zagreb.

Yellow Cake in the Rock

In an ordinary mine visitors have to wear boots and put on cloaks when they are touring underground to protect them from mud and the "dew" from the mine walls. But it is different here. The news photographer and I had to strip to the skin and then put on a miner's clothing and footwear. The reason is that we might carry a portion of the radioactive radiation to others on our clothes. The miner's clothes and footwear we remove are decontaminated after washing.

This mine on the slopes of the Julian Alps is entered at four levels, the lowest at 430 and the highest at 530 meters. The levels are connected to one another by some 30 km of tunnels traveled by big dump trucks carrying some 20 tons of ore. The nearest settlement is Gorenja Vas, which is a few kilometers

away by a newly built road. Down below the mine a brook called the Brbovsčica, which is more heard than seen, flows through the ravines and woods. They say that the vegetation flourishes and that plants mutate in the surrounding forest because of the radioactivity. They say that in that forest there are beech trees that look like oaks? Below the mine there are several fine cottages which the mine has built for the peasants to replace those demolished.

Uranium oxide or pitchblende (U_{308}), and that is what is being sought, is found in an ore scattered in the bowels of the mountain in lenses with a diameter as much as 10 meters scattered through siliceous sandstone. Uranium is not dug like coal, which involves the miner going in search of the "black gold." No, here every lens first has to be located by the geologists in the deposit, then the miners dig broad tunnels to it.

Next year when it goes into regular operation, the RUZV will produce about 160,000 tons of ore a year; this involves digging another 160,000 tons of yellow stone, gangue. Of those 160,000 tons of uranium ore the mine will obtain in its own processing plant, built alongside the mine itself, 120,000 tons of uranium concentrate a year, which is popularly referred to as yellow cake, and this is actually uranium oxide (U_{308}). After enrichment in the United States those 120 tons will yield 16.6 tons of fuel elements, which is sufficient for a 1-year replacement of spent fuel at Krsko.

A Darkness Thick as Lead

For 20 minutes already we have been walking through the mine tunnels escorted by the underground technical superintendent Engineer Andrej Pisak. These wide tunnels in pure rock are especially unusual because there are no supports. The ceilings of the tunnels have been consolidated with anchors driven into the stone.

The lamp in my helmet barely cuts through the darkness, which is as dense as lead, and the perpetual moisture flickers in front of the beam of its light. Every 10 minutes or so our eyes are flooded from a distance by the glittering eyes of the heavy dump trucks full of ore. An awkward meeting in a narrow tunnel with a vehicle as large as a railroad car. The bright eyes approach rapidly, and the roar shatters one's ears. We press against the wall, and the colossus passes. Water is flowing along the floor of the tunnel, and the watery mud looks like cafe au lait. The boots sink in almost to the knee, and what can only be called rain is dripping from the roof.

"Is this water also radioactive?" I asked Engineer Pisak.

"Yes, but below the hazard level."

Outside, before entering the mine, we measured the radiation on the tailings pile with a scintillation counter. Not, that is, useful ore, but the cast-off stone. Nevertheless, the indicator jumped like crazy. But, they say, "that is within the normal limits." The Geiger counter, which pops for every ionizing ray, sounds like a siren here.

Every miner wears on his chest a dosimeter to measure the daily amount of radiation received. The dosimeter is checked in Ljubljana, and if the film is near or below the upper limit of danger the miner is called in for examination. Incidentally, miners are granted 18 months of pensionable service for every year they work in the mine, and those outside the mine proper get 15 months.

Caution, Wash Your Hands!

At the work site, which we reached by making our way more than 2,000 meters through the wet bowels of Zirovski Vrh, we finally saw a group of miners. They were drilling with power drills that cut through the rock as though it were cheese. The drills leave a very hazardous radioactive dust, so that the miners wear special masks. Explosive charges are then placed in the drill-hole. After the demolition giant loaders with internal combustion engines arrive; their exhaust looks like a barrel of water in which the smoke is bathed before it comes out. So at least that smoke will not smother these people. I take a piece of ore in my hand: a heavy mineral with brown-green stripes through the basic stone, like gorgonzola cheese.

"How much do you earn?" I tried to shout over the noise of the drills handled by a team of miners headed by Vojko Cverle.

"Not bad, about 50,000 dinars with overtime and supplements!" Cverle said.

The others earn less. A helper at this underground work site earns about 35,000. Are there any sort of supplements? Yes, but those earnings are "with everything included." The mine employs 370 people, 180 of them underground. Most come from nearby places around Skofja Loka and Idrija. They are still short some 20 miners. At 300 meters below the surface the miners have a plant restaurant, a pleasant room in which breezes from the fans are swirling to break up the radioactive radon. The dust must absolutely not enter the body. That accounts for the warnings everywhere: "Caution, caution, wash your hands before you eat!"

Engineer Dusan Pensa, a young but experienced mining engineer, explained the process of operation to us at length. After it is mined, the ore is wet-ground in the plant, and then the pitchblende (yellow cake) is extracted from that uranium pulp with sulfuric acid. Incidentally, this is a very complicated job in which two zones are marked off because of the radiation hazard: zone A (very hazardous) and zone B (less hazardous). We even went there. That yellow cake is actually a yellow dust. One pound (0.454 kg) of that dust costs \$53! The man who is packing the yellow cake is set apart in a room where he has his own bath, washing machine, clothing, footwear and personal things. All of that stays there. This job is especially hazardous, and it is under strict monitoring because of the strong radiation. He earns about 65,000 dinars a month.

The Two (Hazardous) Zones

"I am aware of it all, so I am not afraid. Nevertheless, a man has to be careful," he says with a smile.

But that yellow dust is not yet fuel for nuclear power plants. Only after "enrichment" does one get some 16.6 tons of fuel elements from 120 tons of that powder. And in that 16.6 tons the most important is the quantity of the uranium isotope U_{235} . The more there is of that isotope, the stronger the fuel. A ton of ore contains only 840 grams of pitchblende. And from that it is possible to obtain about 90 grams of fuel elements!

All the yellow cake produced at Zirovski Vrh is worth about \$7 million, but about \$17 million have to be paid to enrich that quantity with the isotope U_{235} . Only the United States, the USSR and Great Britain possess the very sophisticated enrichment facilities. Our ore goes to the United States. Of those \$7 million the mine keeps about \$2 million to pay off credit and import equipment, while the remainder is used as currency to import the finished fuel for Krsko.

While we were walking through the tunnels, a strong wind was huffing past us, like a hurricane in some places. I know about mine ventilation, but this is a much stronger wind.

"The most important thing in a uranium mine is to remove the gas radon, since this is the most hazardous, and that is why we have this strong ventilation," Miran Planten, who directs the preparatory operations, explained to me.

Radium comes about through the radioactive decay of uranium, and the decay of radium produces the gas radon, which very quickly, in just its 4 minutes of life, decomposes into various components, the most essential of which is radioactive lead. The radon has to be expelled while it is a gas, and that is the secret of these hurricanes in the tunnels. Otherwise, if the radon gets into the lungs, radioactive lead, which is very hazardous, will soon be created there.

Every dump truck loaded with ore stops at the exit from the mine, at the place where the sign over the mine reads "Goodby and good luck." This is the so-called radiometric door over which a sensitive scintillation counter that looks like a large roller measures the strength of the ore's radiation. The grade of the ore depends on that strength.

Outside in the sunshine it is pleasant to look at the forest and the noisy Brbovsčica. The effluent from the wet-ground ore cannot go into that brook because of its radioactivity, but is rather returned into a closed-cycle process. Nevertheless, the water of the Brbovsčica is radioactive. Once again, "within normal limits." The Jozef Stefan Institute of Ljubljana takes care to protect that brook and indeed the entire environment from radioactivity. They say that they are succeeding.

7045

CSO: 2800/136

ARGENTINA

NUCLEAR INSTITUTE'S FINANCIAL PROBLEMS REPORTED

PY061549 Buenos Aires NOTICIAS ARGENTINAS in Spanish 1935 GMT 5 Feb 85

[Text] Buenos Aires, 5 Feb (NA) -- Mario Mariscotti, research and development director of the National Commission for Atomic Energy [CNEA], today said that the Applied Research Institute, [INVAP] which is constructing the uranium enrichment plant in Pilcaniyeu, Neuquen, is about to halt activities because of financial problems. He added that the Pilcaniyeu plant will only be able to start the uranium enrichment process by the end of 1986, 1 year behind schedule, as a result of budget problems affecting the nuclear plant.

In an interview granted to NOTICIAS ARGENTINAS, Mariscotti expressed his concern over possibly "losing the CNEA teams of experts and professionals" due to their low salaries. He also said that the CNEA "has suspended its programs for bringing back its scientists to Argentina" because of the lack of funds.

However, despite budget problems, he reported that the Pilcaniyeu group is researching and developing a project for a small reactor, not greater than 20-kilowatt capacity, which should be cheaper to build than the 300- or 600-kilowatt reactors. He also said that thanks to efforts last year, "Argentina is virtually independent in the manufacturing of fuel elements" for the Atucha plant as well as for the Embalse plant in Cordoba.

Mariscotti said that "there are serious obstacles in carrying on with our research and development task," mainly due to the lack of funds. He recalled that in 1983 it was announced that by the end of 1985, the Pilcaniyeu uranium enrichment plant would be operating, and that once Argentina had been internationally classified seventh place in this field.

Mariscotti remarked that the regular supply of enriched uranium, which will give fuel elements a longer lifespan, for the Atucha I and Embalse nuclear plants should have started by the end of 1985. Enriched uranium may be "supplied irregularly," and with a great effort, as of mid-1986, but until the end of 1986 "we will not be able to make the Pilcaniyeu plant fully operational," which will consequently delay the work on the Atucha II plant 3 years, Mariscotti said. He added that "in order to keep workers from being idle" they are being assigned to carry out tasks requiring little funding scheduled in the general work plan.

Mariscotti explained that INVAP is suffering a "very critical situation" although it enjoys "a healthy financial and economic state." It happens that the CNEA owes INVAP

"more than 1 billion pesos" and the company is not even able to obtain credit sources to finance its activities, he said. Buenos Aires Province Bank President Alfo Ferrer has expressed concern over INVAP's situation, but "no help has come yet," Mariscotti added. He also reported that the stoppage of activities at INVAP will "affect our international commitments," like the nuclear research program with Peru, and it will also greatly demoralize all the CNEA people.

Asked about the salary situation of the CNEA experts, Mariscotti replied, "I do not want to be definite, but because of this problem we might begin to lose our teams of researchers and professionals." He explained that "by mid-1984 all public employees had received salary readjustment, but the CNEA was not included, and that made our October 1984 salaries have 50 percent less value than in October 1983."

CSO: 5100/2062

ARGENTINA

ECONOMIC FACTORS SHOULD NOT ALTER NUCLEAR PLANS, SAYS DAILY

Bahia Blanca LA NUEVA PROVINCIA in Spanish 12, 13 Jan 85

[12 Jan 85, p 6]

[Text] The government's careless attitude about the nuclear issue is both fascinating and frightening. There is no longer any doubt that the Argentine Nuclear Plan (PNA) is not only shelved but practically abandoned, and that even the modest objectives (or priorities, the euphemism that has been used by Alberto Costantini, the current head of the National Commission for Atomic Energy) that have been salvaged from the primitive program that was being carried out haphazardly by the military administration cannot be implemented in the foreseeable future. The excuse for this behavior was obvious, and also partly sincere: The economic recession policy that the government has begun to apply—and that will be stepped up over the course of this year—is slowing down the pace of these projects, even the top-priority ones, by making it impossible to carry out all the investments that an advanced, expensive and complex technology requires.

Without ignoring this reason, which is backed up by undeniable evidence, the indifference with which this issue has been considered and resolved in the highest echelons of decision-making reveals, nevertheless, a tendency and almost a real ideological distortion that not only prevents the current government from interpreting and weighing the profound importance of nuclear power and the related technology for the future of the republic, but leads it to destroy what has already been accomplished and to paralyze what was underway. This reflects a kind of insensitivity to history, a political and strategic myopia that will result, intentionally or not, in the amputation of Argentina's greatest potential for entering the third millenium in a position to make use of "cutting edge" technologies which are capable of overcoming the problems that now plague its conventional and obsolete industry, and of shortening the distances that separate the country from the major centers of world power.

It should be recalled that the military government literally bid farewell to the country by announcing an extraordinary advance in this field—both quantitative and qualitative—the mastery of the complete fuel cycle. This placed Argentina in a position to expand its nuclear activity to areas that were previously inconceivable. Now, in the year that just ended, the country has

witnessed another triumph that cannot be ignored or deprived of its full significance: Cobalt 60 was obtained at the Embalse nuclear power plant in Rio Tercero, Cordoba. This radioisotope, which was produced for the first time not just in Argentina but in all of Latin America, has innumerable applications in medicine. This achievement is also noteworthy from the standpoint of the scientific development it represents and the efficiency of the plan as it was designed and applied for years by the National Commission for Atomic Energy (CNEA), through the most diverse political reincarnations and the most disparate political administrations. In fact, one of the major virtues that enabled the country to reach its current level of development was the continuity of the policy adopted in this area, following unified and coherent criteria. It placed the CNEA, its men and its plan above the vicissitudes that in our country tend to be the most frequent cause of ruin in the best of projects and the best of ideas.

Today this promising future is threatening to dissipate. According to information that has been revealed—in this democratic government as never before, officials in this sector seem to have been overcome with a desire to maintain utter secrecy—the only priority project that seems to be concerned about the CNEA's survival is the TANDAR [expansion unknown] research plant; and the civil construction work that is underway or in the planning stages, scheduled for completion by 1997, has been postponed indefinitely. This means the destruction of the plan that had been the pride of all Argentines, and it spells disaster for the strong, highly-skilled industry that had grown up around that plan, achieving yields much higher than those of other sectors and showing less dependence on imported inputs and technologies.

The CNEA's budget for 1984, in December 1983 pesos, speaks eloquently and leaves no room for doubt: The agency's needs amounted to just under 30 billion pesos, but it was willing to settle for a little over 20 billion pesos. The Executive Branch cut that total to 17 billion, and the allocation finally approved by Congress was a mere 15 billion. But in carrying out this very modest financial plan—which, as can be seen, is only half of what the CNEA really must have to meet its needs—the new administration's cruelty became apparent: As of 6/30/84, not even half of what had been allotted so far had been turned over. The result was that when the halfway mark was passed last year, the officials and technicians began to express their annoyance at their meager emoluments. When an agency such as the CNEA, on which much of the fate of future generations of Argentines depends, has trouble meeting its payroll, this is a tragic indication of the confusion of our times.

[13 Jan 85, p 6]

[Text] The economic asphyxiation to which the National Commission for Atomic Energy (CNEA) has been subjected naturally extends to the entire industrial sector whose formation, integration and development depended on that agency's rate of growth. The CNEA was responsible for the nuclear technology revolution in Argentina, a revolution which has suddenly been halted, leaving the country on the threshold of a future to which it is denied access. The CNEA sets an example not only of technical devotion and scientific quality, but

also of the correct policy of participation, dissemination and promotion in which the private sector played a direct and important role.

The continuity the CNEA was able to achieve in its activities enabled the private sector to design plans and investments over a reasonable period of time; the businessmen of the sector found out about the programs of this state agency far enough in advance to be able to make their forecasts and make the necessary changes to meet the CNEA's requirements, which became increasingly stringent. In other words, contrary to what happened in other activities run primarily by the state, in this one, by adhering very strictly to the schedule that had been laid out, it was possible to stabilize demand, and the industry had a wide margin of security and profitability. This is a magnificent, though isolated, example of the integration of public and private activities, without the possibility of competition. This virtue, too, is jeopardized by the fraudulently harmful policy pursued by the current administration.

The nuclear sector is a particularly integrated one, in that it cannot be developed along independent, divergent lines; thus, the mastery of the fuel cycle, which is one of the basic areas of research, requires the installation of laboratories and of pilot plants to ensure a modicum of autonomy, since otherwise the industry could be strangled at the worst possible moment and all national activity—both state and private—would be subject to a decision from abroad that could interrupt any phase of the cycle, making its development impossible.

The Nuclear Plan, whose fate is entirely unknown because the government has not yet expressed a vigorous political will to continue it, calls for the construction of six nuclear power plants by 1997. It is interesting to note the progress that has been made in terms of the participation of Argentine industry in these projects. Forty percent of the work done on Atucha I was by national firms, while on the Embalse plant that total had reached 52 percent; the CNEA was responsible for the overall direction of work on Atucha II, and it is expected that the last plant will have a total of 85 percent local participation. If this program is carried out (now it appears to be up for review, and in any case, it is shrouded in a thick veil of silence that no one in the government is willing to tear), Argentina will have achieved almost total energy independence by the end of this century or the beginning of the next one. This accomplishment would place it at an exceptional level, predominant among developing nations, in that it will have overcome the two greatest crises to threaten the world in the coming decades: energy and food. Of course this autonomy would facilitate a harmonious and steady economic growth, and would also give the country considerable freedom of action in its participation in the future international system.

In opposition to these projects, it is often argued that the country's present demand for energy is relatively low, and would not justify the investment necessary to build new power plants. This reasoning denies the immense technological potential of nuclear activity. Furthermore, it is irrational to make a strategy for the country's political and economic structure depend on a temporary, short-range situation.

The absurd policy of restricting nuclear activity not only entails considerable setbacks in programs already underway, but also makes them impossible to complete or not very competitive. Atucha II will be delayed by more than a year, as will the heavy water plant; and the reprocessing plant will barely be equipped by 1988. If the priorities set forth by those currently in charge prevail, however, these delays will be even greater and more damaging, and these time periods could be doubled, at least.

It cannot be denied that in addition to the ideological motivations and the economic grounds that have lead to this budgetary strangulation (which will necessarily result in the loss of the human and technological capital built up so far after years of outstanding and coordinated effort), another influential factor is the international pressure that is being exerted on this country (and it is to be hoped that President Alfonsin will honor his public commitment not to adhere to or ratify the Nuclear Non-proliferation Treaty, because that would be not only an affront to our sovereignty, but a devastating blow to the entire nuclear policy pursued to date) as well as other countries that provide technology or materials to Argentina, such as Switzerland, which signed a contract to deliver the heavy water plant.

All these projects, which were the cause and consequence of the formidable Argentine triumphs in nuclear technology, really depend on a political decision rather than a situation of strangulation. It is not acceptable for this activity, which has placed Argentina among the handful of countries capable of dictating the history of the millenium that is about to begin, to be included in the recessive policy that will be applied to the entire national economy. That means blocking the great source of growth that will enable us to emerge from the present and move into the future.

8926

CSO: 5100/2057

ARGENTINA

NUCLEAR INDUSTRY LAYOFFS BLAMED ON IMF DEMANDS

Buenos Aires LA VOZ in Spanish 11 Jan 85 p 9

[Passages enclosed in slantlines printed in boldface]

[Text] /One hundred construction workers/ were discharged by the Dycasa firm /and 140 others were laid off by Nuclear S.A. The two firms were working on the Atucha nuclear power plant, located in Lima in the Zarate district./

The laid off workers belong to the Construction Workers Union (UOCRA), Zarate local. Through their secretary general, Graciano San Esteban, they complained to the authorities of the regional Labor Ministry, and /the conflict was then passed on to the national Labor Ministry./

About /1,000 construction workers/ are employed at the Atucha nuclear power plant, which is of primary importance for the distribution of electricity throughout the country.

/The workers of the UOCRA plan to mobilize to this capital city, and expressed their concern about their employment. They also indicated/ "the possibility that the rest of their coworkers who are still on the job will be left out in the street, and their future will be jeopardized."

Sources at the Zarate local of the UOCRA told LA VOZ that today /a meeting would be held with Treasury Ministry officials and the president of the National Commission for Atomic Energy (CNEA), Alberto Constantini,/ where the serious problem facing construction workers would be discussed.

Meanwhile, the multinational firm /Techint Argaton,/ which belongs to the /ENEAS/ group, the principal supplier of raw materials to the Atucha I and II power plants, began to /furlough some employees and give others early vacations./

The /Peronist deputies on the Science and Technology Committee,/ on the other hand, in view of the budget cuts in the Atucha II plant and the Arroyito heavy water plant, /denounced the government for accepting the recommendations of the International Monetary Fund/ that will destroy national scientific development.

One of the principal complainants, Deputy Mario Gurioli, did not mince words in assigning the blame for that measure to Finance Secretary Norberto Bertaina and other officials of the Economic Ministry. He accused them /of hindering the development of the nuclear plan and of technology exports./

After confirming once again that the CNEA does not have any intention of converting the country into a source of war resources, Gurioli noted /serious problems in the nuclear development plans entered into with Latin American allies./

8926

CSO: 5100/2057

ARGENTINA

NUCLEAR PROJECT THREATENED BY FINANCIAL PROBLEMS

PY261500 Buenos Aires LA PRENSA in Spanish 24 Jan 85 p 6

[Editorial: "The Atucha II Debts"]

[Text] The companies supplying the building materials for the Atucha II nuclear energy plant have stopped working and dismissed or suspended their personnel because the government has failed to make the payments due this month.

The government debt that has fallen due since 1984 totals 6 billion pesos. In view of this, the Atucha II executives and workers, together with the president of the National Commission for Atomic Energy (CNEA), have reported the problem to some national congressmen. In talks with the congressmen, the CNEA president stated that the executive branch "will negotiate the payment of the debt during the socioeconomic contract talks." The suppliers have said it is impossible for them "to rehire the personnel, because we do not know if we can pay them, and there is no material to work on."

Regarding the latter problem it should be recalled that in 1984 it cost Argentina about \$11 million to store materials for Atucha II that the suppliers had left in the port of Hamburg and that the CNEA never took delivery of. The CNEA president added that these storage costs will be financed by an FRC supplier company. He also said that the CNEA has failed to meet payments totaling 11 billion pesos, including the 6 billion pesos that are now being claimed. He concluded by saying that the president has decided that "the first priority will be to finish the Atucha II and Arroyito projects in order to connect them to the Interconnected National Electricity System in 1989" and to "grant the CNEA the funds necessary to continue research and the plans to develop the nuclear fuel cycle and enrich uranium."

It is well known that the government is facing serious economic and financial difficulties, but certain projects, such as those we have mentioned, must not be paralyzed, because this would lead to a regrettable delay in the nation's development. Government economists, in their bureaucratic aloofness, failed to punctually pay the large sum for the storage costs of the material intended for Atucha II, and this has then led to the project being halted.

The government does not seem to be concerned about this serious event, perhaps because the obligatory congressional controls were not complied with. If congress called on the ministers responsible for such acts to render account, the authorities would be more assiduous in the management of public administration. The Atucha II case is another example of government carelessness.

CSO: 5100/2058

ARGENTINA

ENERGY OFFICIAL DISCUSSES NUCLEAR PROGRAM

PY291625 Buenos Aires CLARIN in Spanish 27 Jan 85 p 20

[Interview with Energy Planning Under Secretary Jorge Lapena--date and place not given]

[Excerpt] Energy Planning Under Secretary Jorge Lapena talked to CLARIN about nuclear energy within the framework of the government's overall program.

[Question] What place does the nuclear program have in the energy program currently being drawn up?

[Lapena] The Energy Secretariat is currently drawing up an overall energy program in which the production of the nuclear plants will be coordinated with the rest of the planned energy output in order to balance the energy supply in keeping with our available energy resources. In the electrical field preference is given to the use of renewable energy sources, especially the hydroelectric sources, but in the case of the nonrenewable sources preference is given to those sources that have a longer productive life.

In this sense it is estimated that by the decade starting in 1990 considerable progress will have been made in the supply of electricity produced by hydroelectric plants, mainly due to the start of operations of the Piedra de Aguila plant, with a production of 1,400 megawatts (the beginning of the construction of this plant is scheduled for early 1985), and the Yacyreta plant which will produce 2,700 megawatts (construction of this plant is already under way and it is estimated that it will become operational in 1991).

Regarding future nuclear plants, that is, those that will become operational after the Atucha II plant, they will be planned in conjunction with the hydroelectric plants, seeking to maintain our country's development in the nuclear field since, undeniably, we are one of the Third World leaders in this field.

[Question] Do the changes in the 1985 nuclear budget mean a change in the overall energy program?

[Lapena] The 1985 energy budget grants priority treatment to the continuation of energy projects already under way so that they become operational on the scheduled dates. In this field the Atucha II plant has made considerable progress, 45 percent of this project has been completed, and should become operational in 1990.

[Question] Will the hydroelectric projects be postponed in favor of the nuclear ones?

[Lapena] According to what I have just told you, definitely not.

ARGENTINA

CLARIN INTERVIEWS FORMER CNEA DIRECTOR

PY291750 Buenos Aires CLARIN in Spanish 27 Jan 85 p 21

[Interview with former National Commission for Atomic Energy Chairman Oscar Quihillalt--date and place not given]

[Text] Oscar Quihillalt, a former National Commission for Atomic Energy [CNEA] chairman and currently the head of Nuclar, a consortium made up of the entities Sade, Desaci, Tauro, and Macchi Argentina to deal in nuclear projects, has granted an interview to CLARIN to discuss the status of the nuclear sector.

[Question] Argentina possesses the cycle for the production of nuclear fuel. Is that a decisive step in making use of the advantages provided by nuclear technology?

[Quihillalt] There are countries like Canada, which is well advanced in nuclear technology, that do not complete the cycle for the production of nuclear fuel but leave it open. The United States does not complete the cycle either because it does not reprocess. No, it is not a decisive step.

[Question] What fact plays a decisive role then?

[Quihillalt] To have the political-economical capability.

[Question] But Argentina does not have such a capability now, does it?

[Quihillalt] That is relative; everything depends on the possibilities that a country may have. Argentina has achieved some progress. It has trained personnel and has some facilities...now it must advance, implementing a nuclear energy program, something which is now lacking.

[Question] How come? Isn't there a nuclear program that was outlined 5 years ago?

[Quihillalt] The existing program (which was drafted in 1979 under the administration of Carlos Castro Madero) has become truncated. The first nuclear power plant under this program (Atucha II) is 3 years behind schedule. A second power plant under this program should be under construction, but it is not. We do not have a program. And a new one cannot be improvised. It is essential to have economic support. Does Argentina have such support today? Hardly. Will there be an improvement in the future with more funds available? To what extent? I do not know, and I believe that these are questions that the CNEA chairman ought to answer.

[Question] Where does the financial income of the private enterprises which deal in nuclear technology come from? From the contracts for works with the CNEA or from research and development?

[Quihillalt] Primarily from contracts for works and engineering. Installations and welding jobs are also carried out...

[Question] It is being said that the personnel used in the nuclear field are highly qualified. How much does it cost to train such personnel?

[Quihillalt] Lots of money. Here is an example. Let us take a first-rate welder who is working in the automobile industry. This welder must take a 6-month course which will train him and determine whether he can handle the job. If he can, he must obtain a license that must be periodically renewed and only then can he become a nuclear welder. This is not true in other industries. There are other workers that must be sent abroad, with the goal of using them in this or that construction project in the nuclear program. And what do we do now? We do not know when we will be using the know-how of those workers.

[Question] Given the technological capabilities of the nuclear industry, it is being said that at this time there are enterprises which, vis-a-vis the lack of work, easily undertake other types of activities. Is this actually taking place?

[Quihillalt] Not yet, but we are getting close to it. The biggest problem is that we are not being paid. They are several months behind in payment. A contract works as follows: We work a fortnight or a month and then we present a certificate that usually takes 1 and 1/2 months to process. This is a debt and we must be paid, but we are not being paid. In addition, we must pay wages and expenses regularly. There is not enough money and it is a mess to go to the banks.... This does not hurt us as far as investments in capital assets are concerned because we are already equipped, but workers are being dismissed and our workers represent an important investment. In 1983 we had some 1,300 persons working in this enterprise and now we have only 300. By the end of 1984, we suspended work, something that especially had repercussions on Atucha II. One or two other enterprises which are engaged in construction work have fired people. The Construction Workers Union of the Argentine Republic took action and a week ago we held a meeting in Congress. This was published by the newspapers. The meeting lasted from 1500 to 2030. We were promised 300 million pesos, which are readily available. A record was drafted. The personnel were reinstated. The record was signed. We sang the national anthem. And the money? I do not know about it yet.

[Question] Is it feasible for Argentina to export nuclear technology?

[Quihillalt] This is very difficult. Everybody wants to export and it is essential to have financing, let's say, for 15 years plus 6 years grace period and a 7.5-percent interest rate per annum in dollars. I have already talked to the vice president of the Central Bank (Leopoldo Gortnoy), but where does Argentina get that money if the credits that it secures are more expensive?

[Question] There are people who say that if Argentina signs the Nuclear Non-Proliferation Treaty or the Tlatelolco Treaty they would assist in financing exports in this field.

[Quihillalt] That is a lie. If we sign those treaties, like the rest did, they will say: Let us compete now. But nobody will give anything away.

[Question] Is it possible to catch up with the delay in Atucha II?

[Quihillalt] An extraordinary funding will be necessary, a funding that exceeds the one currently earmarked for it, in order to complete it in 1989.

ARGENTINA

FOREIGN MINISTRY OFFICIAL ON NUCLEAR PROLIFERATION

PY240150 Buenos Aires NOTICIAS ARGENTINAS in Spanish 1345 GMT 23 Jan 85

[By special correspondent]

[Excerpt] New Delhi, 23 Jan (NA)--Jose Sabato, special affairs secretary of the Foreign Ministry, has stated that Argentina is prepared to sign the Non-Proliferation Treaty (NPT) "right now" if the two basic conditions demanded by President Raul Alfonsín's administration are accepted.

Sabato said that the conditions that Argentina sets for signing the NPT are "an effective nuclear disarmament, because the opposite is a threat to our lives and to the planet at large," and "the freedom to seek technological development for the peaceful utilization of this industry which we need. If this were achieved the Argentine Government would sign this treaty happily tomorrow, even today," Sabato indicated going on to add that "unfortunately these conditions are not being fulfilled."

Sabato held a lengthy talk with the journalists who are accompanying the president on his tour, during an impromptu press conference held at the request of the journalists themselves on board the plane which carried the Argentine chief executive from Nairobi to India. Sabato, who was accompanied by Presidential Spokesman Jose Ignacio Lopez, expressed some regret because the current conditions are not appropriate for signing the NPT: "This treaty has neither precluded the proliferation of nuclear arsenals, nor has it guaranteed us the possibility of developing nuclear technology for peaceful uses," he said.

Sabato went on to deny that Argentina may have something to do with an alleged maneuver aimed at "breaking through the siege" which the superpowers have laid around India to prevent its nuclear development, as had been claimed by a Buenos Aires daily.

"It is a groundless rumor," Sabato said. He also denied that this subject will be discussed at the "summit" meeting on disarmament which will take place on 28 January in New Delhi.

As to the possibility that Argentina may help India to break through the siege, Sabato indicated that "the problem is a complicated one" and recalled the restriction issued by the United States and Canada against India because the latter detonated a nuclear device in 1974.

ARGENTINA

BRIEFS

CNEA'S BUDGET INCREASED--(NA)--Atomic Energy Commission (CNEA) President Alberto Constantini stated yesterday that CNEA's 1985 budget was "almost 30 percent higher" than last year's. In an interview with the mass circulation daily CLARIN, he also said that the original cost estimate of the Atucha II nuclear plant was 1.5 billion (thousand million) dollars, but its final cost would be between 2.5 and 3 billion. In the course of the interview there were also complaints about the government withholding funds and doubts were voiced as to whether the plant could come on stream by 1989 as planned. Constantini also stated that Argentina had not signed nuclear nonproliferation treaties "because it wished to maintain its sovereign rights, considering (the treaties) discriminatory." [Text] [Buenos Aires BUENOS AIRES HERALD in English 28 Jan 85 p 5 PY]

CSO: 5100/2059

BRAZIL

PRESIDENT-ELECT NEVES ON NUCLEAR ACCORD WITH FRG

PY172031 Sao Paulo Radio Bandeirantes Network in Portuguese 1400 GMT 17 Jan 85

[Press conference held by President-elect Tancredo Neves from the congress building in Brasilia--live]

[Excerpt] [Neves] Regarding the nuclear agreement with the FRG, we have already said and we reiterate that we intend to maintain it but it needs to be revised, to be strictly revised not only to provide it, from the technical point of view, with better conditions for the development of nuclear technology, but primarily with terms that will be compatible with our financial situation and that will give us power. To promote the expansion and development of technology in this field will not be carried out to the detriment of the national economy. In sum, we cannot ignore the scientific achievements regarding the atom. We must follow all the phases of the nuclear process because it represents a new field in the world and Brazil cannot remain apart from these technological achievements. However, I believe that the most rational solution to the nuclear agreement signed with the FRG will be to maintain it, carrying out those revisions that our scientific and technical community recommend.

Regarding the energy field, we have in fact achieved great advances. Brazil has constructed the largest hydroelectric power plant, that is, Itaipu, as well as the third largest hydroelectric power plant in the world, which is being constructed in the northeast.

CSO: 5100/2053

BRAZIL

NAVY MAY HAVE NUCLEAR SUBMARINE BY 1990

Sao Paulo O ESTADO DE SAO PAULO in Portuguese 21 Dec 84 p 5

[Text] Adm Alfredo Karam, minister of the navy, admitted yesterday in Rio that one of the three submarines to be built under the Naval Reequipment Plan could be adapted for nuclear propulsion in the future. This should happen by the beginning of the 1990's, when complete mastery of the reactor technology is assured.

The minister noted that construction of the first submarine is scheduled to begin early next year in the FRG and the other two will be built in Brazil; one of these will be similar to the one built in the FRG and the other one will be from a national design by the Navy Office of Engineering.

Karam was speaking at the ceremony to install Adm Carlos do Albuquerque as commander of the marine corps [CFN]. The minister confirmed that the reequipment plan also provides for construction of a new aircraft carrier to replace the "Minas Gerais," which has been in service for more than 40 years.

The minister will lunch today at the Naval War School with ranking admiralty officers, when he will assess his administration during this year. He said that "this assessment may or may not be released; no judgment has been made yet."

Message

Assuming command of the Marine Corps, Carlos do Albuquerque said that "before a man is trained professionally as a marine, it is fundamental that he be trained as a soldier-citizen, imbued with unshakeable faith in the worth of his corps and a real sense of his part in Brazilian society."

The admiral said that the marine must "spurn the temptation of any false incentives, even in the most deceptive forms." According to the new Marine Corps commander, "the observation of such negative actions, veiled or open, must be taken into consideration by each one of us and duly combated, neutralized and deflected by conviction in the true values on which the character of the real Brazilian military man, particularly the marine, is based."

Strategic Force

Adm Domingos de Mattos Cortez, who completed his term of active service and relinquished his post as commander of the Marine Corps, said: "I belong to a generation which helped to build the modern Marine Corps, the product of a revolution in thought, process and methods which enabled the Navy to have a strategic force, proud of its tradition, aware of its importance, its worth and its professionalism."

Admiral Cortez declared that the marine is "acutely aware of having made a substantive contribution to Brazilian naval power, without taking anything away from it." The admiral cited former Minister Maximiano da Fonseca and the president of the republic "for the page which they have added to the history of the CFN."

Attending the installation ceremony for the new commander of the CFN were Adm Arthur Ricart da Costa, navy chief of staff; Adm Henrique Saboia, general director of marine personnel; Adm Mario da Fonseca Hermes, general director of materiel; Adm Jose Maria do Amaral Oliveira, commander of naval operations; and Adm Lins Leal Ferreira, secretary general.

6362

CSO: 3342/71

PERU

BRIEFS

ARGENTINA TO REFINANCE NUCLEAR PROJECT--General Juan Barreda Delgado, president of the Peruvian Institute of Nuclear Energy [IPEN], has announced that work will be resumed next week on the Huarangal nuclear center project. He estimated that the center will be finished by the end of this year. Barreda talked with the press at Jorge Chavez Airport, where he had come for family reasons, and said that a satisfactory agreement has been reached with Argentina regarding the refinancing of credit granted to IPEN for the project. [Text] [Lima Radio del Pacifico in Spanish 1200 GMT 17 Jan 85 PY]

CSO: 5100/2056

BANGLADESH

COMMENTARY DISCUSSES NUCLEAR ENERGY PROGRAM

Dhaka Domestic Service in English 27 Jan 85

[Text]

Against the backdrop of the growing energy problem due to scarcity of the sources of energy, government has taken a positive move to establish a nuclear power project in the western zone of the country. Efforts have been initiated to obtain the required funds to implement the project for which the feasibility study has already been completed.

President Ershad has once again made it quite clear that government attaches priority to the nuclear power project for creating a new base for peaceful nuclear uses, particularly in the energy sector. Inaugurating a 4-day international conference on physics and energy for development in Dhaka yesterday, the president rightly said the scarcity of the sources of energy has become a major hurdle in the way of overall development of the country. He underlined the need on the part of the scientists to undertake research on nuclear and renewable sources of energy. About the nuclear power project in the western zone, the president noted that its implementation with donors' assistance is needed to meet the growing energy requirement of the country. The project is considered to be an objective proposition, both technically and economically. In addition to generation of power, it will help improve the infrastructure of the country and acquire a technology which is going to become more useful in future as the hydrocarbon sources all over the world would start dwindling.

In the atomic energy sector, the most heartening aspect of the country's development relates to the experimental atomic energy research center. This center, first in the country, will be operational soon. A substantial part of the work for its implementation has been done by the local scientists and the technologists. President Ershad has rightly termed it as a great success while expressing the hope that the center would go a long way in building up the needed infrastructure of a nuclear program for peaceful purposes in the country. When the center becomes operational, it can be used for research and manpower training for future nuclear plans and production of radio isotopes for their uses in agriculture, medicine, and industries.

CSO: 5100/4722

BANGLADESH

SOVIETS REPORTED TO ASK CONCESSIONS FOR N-PLANT AID

Dhaka THE NEW NATION in English 5 Dec 84 pp 1, 8

[Article by Jalal Nawaz]

[Text] The Soviet Union would prefer "some political concessions" from Bangladesh for financing the 440-megawatt nuclear power plant to be installed at Rooppur.

The offer was reportedly made by the Soviet side during formal talks with Bangladesh recently. The Soviets offered to supply the plant at a reduced price if Bangladesh agreed to some political concessions. The Soviet side expressed their readiness to accept some conditions, which include supply of fuel and taking back the nuclear waste, as put forward by the Bangladesh government.

The Bangladesh government, however, is learnt to be in a dilemma whether to accept the offer apprehending tremendous reaction at home and abroad. It apprehends that the acceptance may lead to cut in food supply by the western and other countries.

The nuclear power plant was approved by the then Pakistan government thrice-- in 1963, 1966 and 1969 and by the Bangladesh Government in 1980, but it could not be implemented since it involved a huge amount of money. At present it has again been taken up considering the growing need of power in the northern side of the country.

Meanwhile, it is learnt that the government has no clear idea as to the cost of the plant. According to a source, the plant costs 500 million dollars while another source put it at one billion dollars.

Whatever be the price, the government will have to arrange 30 per cent of the total value in local currency and be capable of repaying the loan with three to four per cent interest within 10 years. It will also have to incur huge amount of additional expenditure to meet power requirements for 10 years, the time needed for completion of the plant.

The execution of Roopur plant which has been given second national priority next to the Jamuna bridge would depend on the availability of funds from the next five-year plan.

Meanwhile, the Project Implementation Committee has asked for inviting international tender in this connection.

CSO: 5150/0019

BANGLADESH

BRIEFS

WORK ON NUCLEAR REACTOR--Bangladesh will have its first atomic reactor soon. Participating in an international conference in Dhaka, President Ershad said substantial work on the project has been completed. The president said that the government plans to have another nuclear power plant in the western region. The first reactor is being installed at Sawat near Dhaka. [Text] [Delhi Domestic Service in English 27 Jan 85]

CSO: 5100/4722

INDIA

INDIA TO AUGMENT NUCLEAR POWER PRODUCTION

Bombay THE TIMES OF INDIA in English 6 Jan 85 p 7

[Text] Kanpur, January 5--India would multiply its power generation through nuclear plants by the turn of the century, undaunted by "Western propaganda" that nuclear power generation was not safe, the chairman of the Atomic Energy Commission, Dr Raja Ramanna, said here today.

Scoffing at the propaganda that nuclear power generation was dangerous and must be discouraged, Dr Ramanna said both the United States and the Soviet Union were planning to double nuclear power generation while advising developing countries to abandon it.

Delivering the Dr Kelkar memorial lecture at the Indian Institute of Technology here today, he said nuclear power accounted for less than three percent of India's power generation at present and by 1999 its share was expected to be over ten percent.

He announced that the Rajasthan nuclear power plant no. one, which had been shut down due to leakages a year back, would become operative next month and the Baroda plant, where an explosion had occurred a month back, was already back in full swing. The Naronha power plant in Uttar Pradesh was expected to start production by 1988.

Safest Method

Addressing members of the IIT alumni association on the occasion of the institute's silver jubilee session, Dr Ramanna said India was using the safest method of disposing of nuclear waste by dumping it into the womb of the earth.

He said France, which was producing 30 percent of its power through nuclear plants, planned to increase this share to over 70 percent by 1995.

Dr Ramanna referred to the depletion of coal resources in the country and said coal supplied to Indian thermal plants had more than 40 percent ash content which made it uneconomical for them. The switch to alternative sources of power generation had, therefore, become imperative.

Referring to the advances made by Indian nuclear scientists, he said India was the only country to have developed a process for converting thorium into uranium 233, the basic raw material for nuclear plants. Even U.S. scientists had lauded the work done by India in this field.

INDIA

REPORTER SEES NO CHANGE IN U.S. NUCLEAR EQUATION

Bombay THE TIMES OF INDIA in English 6 Jan 85 p 1

[Text] Washington, January 5 (PTI)--While hoping to improve relations with India further under the new government of the Prime Minister, Mr Rajiv Gandhi, the United States is expected to make no change in its view that to get a firm nuclear non-proliferation commitment from Pakistan, there must also be a commitment by India.

If a recent speech by Mr Michael H. Armacost, U.S. undersecretary for political affairs has any indication the U.S. is unable to get out of its old habit of equating India and Pakistan.

In the interests of regional stability, said Mr Armacost, India and Pakistan simply had to find a basis for wider co-operation. He contended that as long as India and Pakistan were bitterly divided, the subcontinent would remain vulnerable.

He acknowledged that U.S. security ties with Pakistan complicated U.S. relations with India but said "we recognise India's concern about the level of armaments of its neighbours but Pakistan has legitimate security requirements in the face of the Soviet threat from Afghanistan."

We maintained a dialogue with late Mrs Indira Gandhi's government on this point which would continue under her successor, and "we hope that over time our positions and the interests of Pakistan will be better understood by our Indian friends."

On the issue of nuclear proliferation Mr Armacost said it was no secret that the United States and much of the world concerned over the possibility that both India and Pakistan were pursuing programmes that could lead to the development of nuclear weapons.

"Unfortunately, neither country has taken the steps that could put these fears to rest. Despite our continued urging that they do so, neither has become a party to the nuclear non-proliferation treaty," Mr Armacost said.

"So long as India and Pakistan refuse to accept such comprehensive safeguards (on all their nuclear activities as conditioned by U.S. legislation), we are unable to contribute significantly to their development of nuclear energy for peaceful purposes," he said.

"We have received recent assurances from the Pakistan government as to the peaceful nature of its nuclear programme, and we are confident that our aid has constrained its acquisition of nuclear explosives."

"We will continue to stress the seriousness with which we will view any Pakistani move towards their development. But if the spread of nuclear weapons on the subcontinent is to be prevented, it will take a commitment on the part of both India and Pakistan," Mr Armacost said.

"We have welcomed recent statements by Mr Rajiv Gandhi and President Zia reaffirming the peaceful nature of their nuclear programmes. We will continue to encourage both nations to accept safeguards on all their nuclear facilities," Mr Armacost said.

"A number of proposals have been advanced that could engage Pakistan and India in constructive steps towards lessening tension in the region and eliminating fear and distrust on both sides. These include a binding declaration renouncing acquisition of nuclear weapons, acceptance of full-scope international atomic energy safeguards, adherence to the non-proliferation treaty and mutual inspection of nuclear facilities."

Mr Armacost outlined at length the U.S. view on South Asia.

CSO: 5150/0023

INDIA

COMMENTARY DISCUSSES OBJECTIVES OF NUCLEAR DISARMAMENT SUMMIT

Delhi General Overseas Service in English 25 Jan 85 pp E2-E3

[Commentary by C.V. Vaidyanathan, PTI special correspondent]

[Text]

Leaders of six peace-loving nations are meeting in New Delhi on January 28 in what could be the beginning of a world-wide campaign against the nuclear arms race. Nuclear disarmament has become one of the most serious concerns of mankind today, for the very survival of human beings on this planet is at stake. The six-nation summit will bring together India, Tanzania, Mexico, Argentina, Greece and Sweden in their search for an acceptable approach to bring an end to the never-ending arms race that threatens human survival.

The summit being held in New Delhi at the invitation of the prime minister, Mr Rajiv Gandhi, is the first since the joint appeal issued by them on May 22 last year for global peace and disarmament. The signatories to the appeal included the late prime minister, Mrs Indira Gandhi; the prime minister of Sweden, Mr Olof Palme; the prime minister of Greece, Mr Andreas Papandreu; President Julius Nyerere of Tanzania; President Miguel de la Madrid of Mexico; and president of Argentina, Mr Raul Alfonsin. They had addressed the appeal to the five nuclear-weapon states — the United States, the Soviet Union, Britain, France and China — for a halt to all testing, production and deployment of nuclear weapons and their delivery systems to be immediately followed by substantial reductions in nuclear forces. The initiative for this move came from the Parliamentarians for World Order — an international organization which brings together parliamentarians from over 50 countries including India. The disarmament appeal comes in the wake of increasing threats from accumulation of nuclear armaments. In their attempt to excel one another, nuclear-weapon states have accumulated a variety of the most sophisticated destructive weapons, and the unending race to develop weapons of greater sophistication and destructive power goes on.

What is of importance in the campaign against the nuclear arms race is the creation of greater awareness among the world citizens about the annihilative powers of such weapons. For, in a nuclear war, it would be (absurd) to believe that the effect of a nuclear fallout would be confined to the country or countries at war. It

has been estimated that there are about 50,000 nuclear warheads in the nuclear-weapon states with an explosive power of more than a million bombs of the Hiroshima type. This provides roughly 4 tonnes of dynamite for each inhabitant of the earth — enough to kill the present population on the globe 60 times over. Scientific studies have revealed the horrifying effects of a nuclear war leading to traumatic and environmental catastrophe of unprecedented proportions. What has struck peace-loving nations even more is the announcement of plans to carry nuclear war into outer space despite the realization that nuclear-weapon states are heading toward self-destruction.

Apart from these threats facing humanity as a whole, the enormously wasteful expenditure of resources on the arms race by a dozen industrial nations also underlines the utter irrationality of the arms buildup. The annual arms expenditure of these nations is estimated to be over \$800 billion. Even a small portion of this expenditure could make a significant contribution toward improving the standard of living of the people in poor nations.

The United Nations General Assembly has devoted two special sessions to disarmament, but with only meager results. It is against this background that the New Delhi Summit of Non-aligned Nations in 1983 devoted so much attention to disarmament. The New Delhi message issued by the summit specifically appeals to great powers to halt the arms race, but the appeals have gone unheeded and not much progress has been registered because of the widely differing perceptions of nuclear-weapon powers.

The survival of humankind is in jeopardy as the late Mrs Indira Gandhi had pointed out in her appeal. Mrs Indira Gandhi had also stressed that while it is the primary responsibility of nuclear-weapon states to prevent a nuclear catastrophe, this problem is too important to be left to these (nations) alone. But the signatories to the appeal are united in the conviction that there must not be another world war. Therefore, the urgency is to stop the rush toward global suicide. The world hangs in the balance between war and peace and there is no time to be lost.

CSO: 5100/4723

INDIA

PROCESS FOR MANUFACTURING HEAVY WATER DEVELOPED

New Delhi PATRIOT in English 12 Dec 84 p 8

[Text]

Baroda, Dec 11 (UNI)—The Department of Atomic Energy (DAE) has successfully carried out experiments on a new process for manufacturing heavy water in a pilot project at the Baroda heavy water plant.

Heavy water projects Chief Executive N Srinivasan told reporters here yesterday that the process involved a water-ammonia exchange in place of the ammonia-hydrogen exchange process being used in the plant in Baroda, Tuticorin and Talcher.

Heavy water is produced using the hydrogen depletion process at Nangal and the hydrogen-hydrogen sulphide exchange at Kota.

The new plant, coming up at Thal in Maharashtra, will use the ammonia-hydrogen exchange while the one at Masuguru in Andhra Pradesh is based on the hydrogen-hydrogen sulphide exchange.

Mr Srinivasan said the department's aim was to be independent of fertiliser plants, which were limited in number anyway, for its heavy water project after five or six years.

The new process uses water as a raw material for the extraction of deuterium and has a bet-

ter rate of recovery than the earlier process, he said. The plants could be located anywhere, with fewer environmental problems.

The new process requires only minimal amount of ammonia, department sources here told UNI that there was no heavy water plant abroad also which was known to use the water — ammonia exchange on a commercial basis.

Mr Srinivasan said India would need a total of about 13,000 tonnes of heavy water by the next 16 years, which would call for an installed capacity of 1300 and 1500 tonnes per year by the turn of the century.

Besides the Thal and Masuguru plants, expected to begin production by early 1987, the department is planning another project in Hazira in South Gujarat where two giant fertiliser units are being set up.

Another plant at Baroda may also be considered, depending on the joint-sector Gujarat state fertiliser company's expansion plans, Mr Srinivasan said.

DAE Joint Secretary S K Bhandarkar said the department was aiming at an installed capacity of 10,000 mw of nuclear energy

CSO: 5150/0018

INDIA

AEC CHIEF TELLS OF CHANGES IN REACTOR DESIGN

Madras THE HINDU in English 30 Nov 84 p 16

[Text]

TARAPUR, Nov. 29

The improvements carried out by the scientists at the Department of Atomic Energy (DAE) on the Tarapur Atomic Power Station (TAPS) have drastically cut down the necessity of importing spares, according to the Chairman of the Atomic Energy Commission, Dr. Raja Ramanna.

Getting spares for the reactor built by the General Electric Company of U. S. was a major hurdle in its operation as that country refused to supply them even though the GEC was given the contract to build the reactor on a "turn-key basis".

"We have undertaken about 400 changes in the reactor design and have developed many of the components indigenously," Dr. Ramanna told a team of reporters from Bombay.

For instance, he said, the country had developed the reactor mechanical sealings, one of the spares the U.S. had refused to supply.

"Now we have to import only very few components like neutron monitors which are highly sophisticated but at the same time their requirement is so small in number that manufacturing them indigenously will not be economical", Dr. Ramanna added.

Kalpakkam reactor: Dr. Ramanna said the country's first fast breeder test reactor (FBTR) would be commissioned in a couple of months at Kalpakkam, Madras. The plutonium fuel for the reactor had already been sent. Scientists were also conducting experiments on using sodium as FBTR's coolant.

CSO: 5150/0017

INDIA

PLANS FOR MIDNAPORE ATOMIC POWER PLANT TOLD

Calcutta THE STATESMAN in English 16 Jan 85 p 9

[Text] Midnapore, Jan 15--An atomic power plant will be set up at Kadirabad Char in the Khejuri area of Contai sub-division in Midnapore district. The 1,100-MW capacity thorium-based project will be the fourth of its kind in the country. The project is estimated to cost around Rs 3,000 crores, according to a Government source here today.

A team of officials from the Department of Atomic Energy, Nuclear Power Board of the Union Government visited the place last week. They will submit a report to the Government soon.

More than a decade ago, Dantan in Midnapore sadar south subdivision was selected for the proposed plant. But department officials disapproved of Dantan as there was no provision for a 30-foot deep water source round the year. A barrage, however, is under construction on the Subarnarekha at Bhasraghat near the place. But adequate water would not be available from the river as that would be used mainly for irrigation, the source said. Besides, human habitation is very close to the site. This was considered unsafe as no habitation is allowed within the radius of five km of an atomic plant.

On the other hand, Kadirabad Char being situated at a distance of one km from the Hooghly and having practically no population nearby, provides an ideal place for the project, it is stated.

Orissa and U.P. are said to be other claimants for the project. But Orissa, unlike West Bengal, has excess power. And if the plant is set up in U.P., the entire Ganga will be polluted thereby, it is pointed out.

CSO: 5150/0025

INDIA

BRIEFS

NUCLEAR SCIENCE CENTER--New Delhi, January 3 (UNI)--A nuclear science centre has been set up at the Jawaharlal Nehru University complex to serve as a national research facility for research in physics, chemistry, biology, medicine and other related fields. The centre is of the outcome of a decision taken by the University Grants Commission (UGC), in creating major research facilities in the university system with cooperative and autonomous management. This is the first of such centres being set up at various places in the country. Professor A.P. Patro of the Saha Institute of Nuclear Physics, Calcutta has joined as the first director of the centre. [Text] [Bombay THE TIMES OF INDIA in English 4 Jan 85 p 21]

SOVIET REACTOR UNITS--Bombay, Jan 13 (PTI)--The Soviet Union is exploring the possibility of extending its cooperation in the construction of a 860 MW nuclear power plant in India with two BBP-440 reactor units, a press release of the Soviet delegation to the chem-tech exhibition, said here today. It has already reached complete understanding with India on the draft intergovernmental agreement on cooperation in the construction of the 840 MW thermal power station at Khalgaon. The exact day and level of signing the agreement for this large project were yet to be decided. [Text] [Calcutta THE TELEGRAPH in English 14 Jan 85 p 1]

POWER STATION REOPENS--The first unit of the Rajasthan Atomic Power Station at Kota was recommissioned today after being closed for 3 years due to a leakage problem. Initially, it is producing 50 megawatt of electricity, but the output will be raised in the next 2 days. The unit has been restored to its normal functioning after a good deal of effort by experts from the Nuclear Power Board, Bhabha Atomic Research Center and the Rajasthan Atomic Power Station. The All India Radio Kota correspondent reports that the leakage posed a unique problem for the first time to our scientists and engineers, as it called for a high degree of technical expertise to deal with. Now that both the units of the Rajasthan Atomic Power Station are functioning, the state will be able to tide over its power shortage. [Text] [Delhi Domestic Service in English 1530 GMT 1 Feb 85]

STARES FROM FRG--New Delhi (PTI)--West Germany will arrange to supply spare parts for the Tarapur nuclear power station, and there is no longer any "hitch," the new ambassador to India, Mr Gunther Schodel, told the press here on Tuesday. Mr Schodel, who presented his credentials to President, Mr Zail Singh, earlier in the day, spoke of the identity in outlook between India and West Germany on the issues of disarmament and peace and said his country wanted the nonaligned movement to become stronger as a force for peace. [Text] [Calcutta THE TELEGRAPH in English 29 Nov 84 p 1]

IRAN

OVER 5,000 TONS OF URANIUM RESERVES DISCOVERED

Tehran ETTELA'AT in Persian 12 Jan 85 p 4

[Text] Dr Banki, the minister of planning and budget and Sarhadizadeh, the minister of labor and social affairs visited the recently discovered uranium reserves.

According to reports, after 3 years of research, specialists of the atomic energy organization of Iran have discovered over 5,000 tons of uranium reserves in the Saghand region in Yazd.

Yesterday morning Dr Banki the minister of planning and budget and Sarhadizadeh, the minister of labor and social affairs, Amralahi the deputy prime minister and the director of the atomic energy organization of Iran, and a few specialists of the planning and budget ministry and the atomic energy organization visited the discovered uranium mines in the Saghand region of Yazd for making the necessary decisions.

At the conclusion of this visit, Dr Banki announced in an interview with the reporter of the Central News in Yazd: "A gigantic group of rich mines of uranium, iron, zinc, and lead have been discovered in vast areas of Saghand (Chadoromi) up to Bafeq Yazd and it is hoped that a great industry will be established in this region for the use of these mines and to secure and strengthen the pillars of our country's independence."

He announced: "Contrary to the vain U.S. hopes to gain these resources in the previous regime, during the few years after the Islamic revolution, vast steps have been taken towards the discovery and operation of these mines."

He added: "One of the important ways of achieving economic independence is to pay ever increasing attention to the mines and the efforts to make these mines revenue-generating operations."

Mr Sarhadizadeh, the minister of labor and social affairs also in an interview after this visit mentioned the difficult work conditions in this region and the excessive generosity of the brothers of the atomic energy organization in Saghand and emphasized the need for providing required human resources to complete the discovery and extraction of existing mines in this area of our Islamic land.

Mr Amralahi the director of atomic energy for Iran, who was accompanied by some of the specialists of this organization and the ministers of labor and social affairs and planning and budget also in an interview referred to the 5 thousand tons of discovered reserves of this mine and said: "Despite 3 years of effort to discover uranium in this region, as time goes by we discover new reserves." He expressed hope that by announcing the Saghand mine as one of the largest uranium mines in the middle east, during the next 2 years the country will be in control of part of the nuclear industry."

At the conclusion, the director of the atomic energy organization of Iran mentioned that uranium is a strategic metal and called the discovery of uranium a great help for the foundation of the national economy.

9815

CSO: 5100/4721

PAKISTAN

ACTION ON NUCLEAR DISARMAMENT URGED

Karachi DAWN in English 3 Feb 85 p 7

[Editorial: "High Principles at New Delhi"]

[Text] The declaration issued in New Delhi by the six-nation summit on nuclear disarmament highlights the runaway nature of the nuclear arms race. It calls for an immediate end to this race and to the militarisation of outer space and deprecates the spending of billions on arms when poverty and miseries stalk large areas of the globe. In many ways the declaration is an impassioned appeal for sanity in an area where a bizarre logic prevails. There is no check on the superpowers as they pour incredible sums of money into the search for even more accurate and destructive weapons.

Behind this reckless escalation lies the tricky theory of deterrence which seeks to restrain an adversary superpower from the first use of nuclear weapons by the conviction that a retaliatory strike will visit unacceptable destruction on its head. The size of the nuclear arsenal on both sides guarantees the "mutually assured destruction" (appropriately MAD) of both the Soviet Union and the United States, not to mention the rest of the world. Given this situation, any addition to this destructive capacity is pointless. A slight pressure on the nuclear trigger will, in any case, mean the end of life as we know it.

If this situation is bad enough, what might follow could be infinitely worse. President Reagan's Strategic Defence Initiative (SDI), or star wars as it is popularly called, aims at creating a complete defence system in space. If the idea to destroy incoming missiles with the help of space installed lasers is appealing, it is not inexpensive. Research alone, at today's prices, is going to cost 26 billion dollars. Moreover, research in the development of weapons is known to create a compulsion for the production of arms, thanks to the defence contractors' lobby.

Actual development will cost a trillion or so more with no guarantee of eventual success since technically it is still at the speculative stage. But even if SDI works, a couple of chinks in its armour will remain, for the system will not ensure defence against swarms of nuclear-tipped cruise missiles that can penetrate U.S. defences by hugging the earth's surface. In either event it will have succeeded in giving the arms race an entirely new dimension. Time is ticking away very fast and something must be done immediately to avert the danger.

However, in opposing the so-called SDI, the Soviet Union should not rely wholly on world opinion getting scared of the U.S. move and treating it as a threat to human survival. The Soviet Union's state is that it will have to redeploy enormous resources from economic and social development to the adoption of a counter-SDI of its own. After all, Moscow has always spent billions on trying to catch up with the U.S. in the arms race. If, therefore, the Soviet Union is not to rest content with letting the U.S. get the blame for the dangerous move, it must make constructive new approaches — in both political and military spheres — to convince the U.S. that SDI can be dropped without any risk to U.S. security in the future.

The six leaders who issued the declaration at New Delhi come from countries which claim to have an independent outlook on world affairs. But the pity of it is that such expressions of high principle do not cut much ice in the capitals of the superpowers. There is also the case of India whose moral authority to speak on the nuclear question is eroded by its own quite active nuclear programme. Anyhow the main thing is to translate the Delhi Declaration into some sort of action.

By raising their collective voice, the countries opposed to an escalation of the arms race can persuade the United Nations to take a more active interest in the problem, but the UN has proved itself to be singularly irrelevant where the arms race is concerned. Representations to Moscow and Washington can highlight international concern, but that is as far as the matter is likely to go. There is, however, one area where the leaders of those non-aligned countries, which are not themselves acquiring bloated armaments, can make a difference. The NATO alliance is more worried about the nuclear arms race than it cares to admit. It has nothing to gain from it but much to lose as East-West relations deteriorate under the burden of this competition. So peace-loving nonaligned countries should, along with Western Europe, seek to introduce an element of pragmatism in the nuclear arms policy of the superpowers — be it in regard to space weapons, the intermediate range missiles, or strategic arms. Some such effort is needed, otherwise the arms control talks slated to begin in Geneva in March can drag on for a very long time without getting closer to any agreement.

PAKISTAN

KARACHI PLANT OPERATION SAID SATISFACTORY

Karachi DAWN in English 20 Jan 85 p 7

[Text]

THE report that the Karachi Nuclear Power Plant (KANUPP) has completed a 104-day run of continuous operation and is now functioning at nearly 50 per cent of its capacity points to the progress Pakistan has made in the field of peaceful use of nuclear technology. KANUPP, it is claimed, is now meeting 15 per cent of Karachi's electricity needs. After the initial teething troubles, its operational efficiency has increased and last year it was functional for eight months — a respectable record, considering the long periods that the plant used to be out of commission earlier. KANUPP's improved performance, in any case, should inspire confidence in Pakistan's capacity to use atomic energy for power generation, besides the medical and agricultural purposes for which nuclear technology is employed in the country today.

Although Pakistan's atomic energy programme has been much maligned in the Western media, it is now clear that without the use of nuclear technology, it is simply not possible to meet fully the country's growing energy requirement. By the turn of the century, Pakistan's electricity need is expected to be of the order of 19,500 MW. But the limited conventional

sources of energy means that 15 years hence, coal, hydro and gas will, according to experts, account for only 11,000 MW, leaving a shortfall of 8,500 MW. To attempt to meet this entire shortfall by importing oil could prove to be costly. Nuclear reactors offer an economical source of energy. Moreover, it should now not be unrealistic to base future plans on nuclear technology given the availability of local expertise which has kept KANUPP operational even after the Canadians departed in 1976. The 937-MW Chashma plant is already on the cards. But before ambitious plans are undertaken it is important to ensure that the capacity to fabricate fuel is adequately developed.

What cannot, however, be disregarded is that the use of nuclear technology has generally met with much resistance from two lobbies — the environmentalists and the peace movement. While the first attack nuclear programmes because they feel nuclear reactors can prove to be dangerous sources of pollution, the others fear that nuclear technology employed for the generation of electricity might be directed into the making of atomic weapons for military purposes. The critics of

Pakistan's nuclear programme have based their case on the non-proliferation argument. But their stand has been rather weak. If all the essential environmental safety precautions have been adopted by KANUPP and other nuclear projects, as one presumes they have been, the military aspect of the matter should really not evoke much concern. It is known that international guarantees, safeguards and inspection procedures can always be used to check the proliferation of atomic weapons while allowing governments to use nuclear technology for energy production. Pakistan has not only reiterated its position that

it will not channel its nuclear programme into military purposes, it has also accepted the stringent safeguards and international controls laid down by the IAEA in respect to its nuclear projects. Given the Government's willingness to adhere to these checks, the credibility of its nuclear programme is not to be doubted. Hence plans to increase the output of energy through nuclear technology cannot be faulted so long as they are within logical limits, observe environmental safety and give adequate weight to the conventional sources of power in the energy sector.

CSO: 5100/4725

PAKISTAN

BRIEF5

PLANT EARNINGS REPORTED--The 137-mw Karachi Nuclear Power Plant (KANUPP), which has just completed a 104 run of continuous operation, was available for two-third of the year in 1984 to generate electricity. It earned Rs 90 million by supplying 250 million units of power last year to Karachi Electric Supply Corporation (KESC). Since 1976, the plant has been operated entirely by Pakistani scientists and technicians. They have successfully brought about many improvements in different systems of the plant during the last eight years. This information was given to a group of editors which visited the plant yesterday. They were taken round the various sections of KANUPP and explained its working by the plant manager, S.D. Hussein. The plant has been kept in operation at varying power levels in response to the local utility's requirements. The reactor is of standard design and uses heavy water as moderator, reflector and coolant.--PPI [Text] [From anonymous column "The Listening Post"] [Karachi BUSINESS RECORDER in English 14 Jan 85 p 3]

CSO: 5100/4724

SOUTH AFRICA

ESCOM COMMENTS ON U.S. WORKERS AT NUCLEAR PLANT

MB211027 Umtata Capital Radio in English 1000 GMT 21 Jan 85

[Text] There may be some truth in reports that American technicians are working illegally at South Africa's nuclear plant. So says a spokesman for the state-owned power company, ESCOM [Electricity Supply Commission]. The U.S. administration is investigating reports that as many as 40 atomic reactor operators may be working at Koeberg, in violation of the International Nuclear Control Treaty. Under American law, U.S. citizens must be authorized by the energy secretary before they can be allowed to help a country like South Africa produce plutonium. Plutonium is a by-product of atomic reactors that can be used to make nuclear weapons.

South Africa has refused to sign the treaty. ESCOM spokesperson (Andre van H. Heerden) says the reports could be true, but the status of the Americans is a problem for the State Department, and has nothing to do with ESCOM.

[Begin (Van Heerden) recording] We have got a tremendous number of people from a variety of nationalities working at Koeberg, including among others, Americans, so we do in fact have people, as I said, of a great many nationalities working there. Obviously, all these skills are not available locally, and we have to go overseas to acquire some of them. But the relationship of the American operators, and/or other staff that we have, and the State Department, obviously is one between them privately. It does not actually affect ESCOM directly.
[end (Van Heerden) recording]

CSO: 5100/13

EUROPEAN AFFAIRS

URENCO GETS ENRICHED URANIUM ORDER FROM SWEDEN

Rotterdam NRC HANDELSBLAD in Dutch 12 Jan 85 p 13

/Text/ Almelo 12 Jan (ANP)--The large order which the Dutch-German-British URENCO /Uranium Enrichment Company/ group concluded at the end of 1984, involves the delivery of enriched uranium to three nuclear reactors in Sweden. This is the first time that URENCO is making a delivery to Sweden. The management of URENCO Netherlands and UCN /Ultracentrifuge Netherlands/ announced this yesterday.

Doctoral candidate W. Thieleman, director of UCN/URENCO calls the contract with Sweden especially important. The country depends on nuclear power plants for 50 percent of its energy supply and consequently is a large potential purchaser of enriched uranium. According to Thieleman, in the nineties, opportunities will arise again to do business with Sweden. At that time contracts which Sweden has with enrichment plants in the United States and France will expire.

The contract which Sweden has now concluded with URENCO replaces an agreement which the country previously had with a U.S. business. According to director Thieleman, it appears from this that URENCO can successfully compete with the American enrichment industry, which is especially due to low production costs. Moreover, this was obvious last year when URENCO managed to penetrate the enriched uranium market in the United States.

The director of UCN/URENCO did not want to say what amount is precisely involved in the Swedish order for "business reasons." He did state that with the delivery in question and with a smaller contract with the Bmsland plant in the FRG a total of 400 million guilders is involved. The contract with Sweden runs for a period of 10 years, beginning in 1987.

In order to carry out the agreement with Sweden, the production capacity of the UCN centrifuge plant must be increased 40 percent.

This means that the plant must have 45 new workers in the second half of 1985. This year the plant will add a total of 70 workers, especially because of the reduction of working hours. That is 20 percent of existing personnel. Thieleman anticipates that this increase of personnel does not need to be temporary.

URENCO now supplies the FRG, Great Britain, Switzerland, Brazil and the Netherlands. UNC with which URENCO is associated, had a profit of 15 million guilders last year.

8490

CS0: 5100/2533

EUROPEAN AFFAIRS

CHINA INTERESTED IN URENCO ENRICHMENT TECHNOLOGY

The Hague ANP NEWS BULLETIN in English 21 Jan 85 p 8

[Text] Shanghai, January 21--China has expressed interest in contacting Ultra Centrifuge Nederland (UCN), the Dutch division of the three-nation Urenco uranium enrichment consortium, a top Dutch economics ministry official said here at the weekend.

Franciscus Engering, General Director of the ministry's foreign economic relations department, said China had already contacted West Germany and Britain, the two other partners in the consortium.

China is seeking access to high-tech processes rather than importing the products of such technology, official sources said.

They said China's interest in UCN could be interpreted as a bid to gain insight into the low-cost ultra-centrifuge enrichment process itself.

Although a nuclear power, China has not signed the nonproliferation treaty. But it recently entered the International Atomic Energy Agency (IAEA), which has established rules for the military use of nuclear waste.

Engering said he expected Holland and China to sign an accord within the next six months on the protection of Dutch investments in the people's republic in the event of nationalisation. Such an accord would pave the way for a treaty to prevent double taxation, Engering said.

He said the lack of such treaties were not due to Chinese concern about the way in which Dutch-built submarines might be handed over to Taiwan.

Dutch talks in Peking and Shanghai had not yet included the possibility of Dutch military exports to China, our correspondent here said.

CSO: 5100/2538

SWEDEN

STEAM GENERATORS IN RINGHALS 2 UNIT MUST BE REPLACED

Stockholm SVENSKA DAGBLADET in Swedish 19 Dec 84 p 6

[Article by Dag Bjerke: "Replacement of Generators to Cost One Billion"]

[Text] Three troublesome steam generators in the Ringhals 2 nuclear reactor will be replaced at a total cost of approximately one billion kronor.

Due to the lack of unprotected rivers and new nuclear power plants, this less noble project will be Vattenfall's biggest "investment" during the rest of the eighties.

Following 2 years of technical and economic studies of the problem of cracking pipes in the steam generators, the Vattenfall board of directors last Tuesday decided to perform a radical "Caesarean section."

650 Repairs

This means that today's situation is untenable. To date, the company has had to repair 650 of the three generators' approximately 10,000 one-inch thick pipes.

The number of repairs has grown considerably in the last few years and is now threatening to reach a level where the loss of the generators' effectiveness is becoming unacceptable economically.

The selection of new steam generators will begin within a year.

"Westinghouse, which originally supplied the ill-fated generators to hundreds of reactors throughout the world, has not been excluded as a supplier," said Lazlo Hunyadi, who concurred with the technical and economic reports that led to the decision to replace.

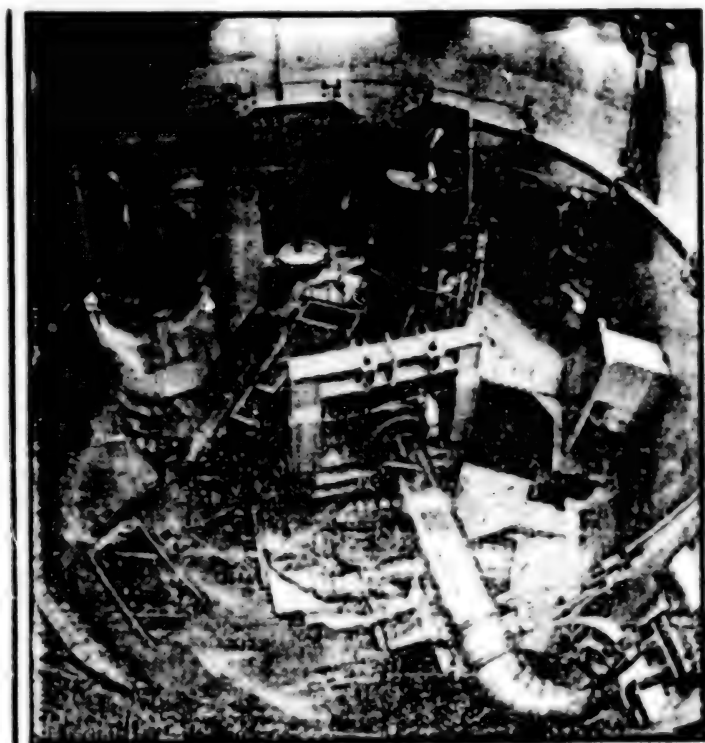
"We will use this opportunity to change to a "larger sized shoe" because, in addition to the cracking problems, the operation of Ringhals 2 has so far shown that the steam generators in question are unnecessarily small," said Hunyadi.

This means that Vattenfall figures it will be able to raise the effectiveness of Ringhals 2 by 50 mW to 850 mW.

According to Vattenfall Director General Jonas Norrby, the greater effectiveness means that the replacement will pay for itself in just 4 years.

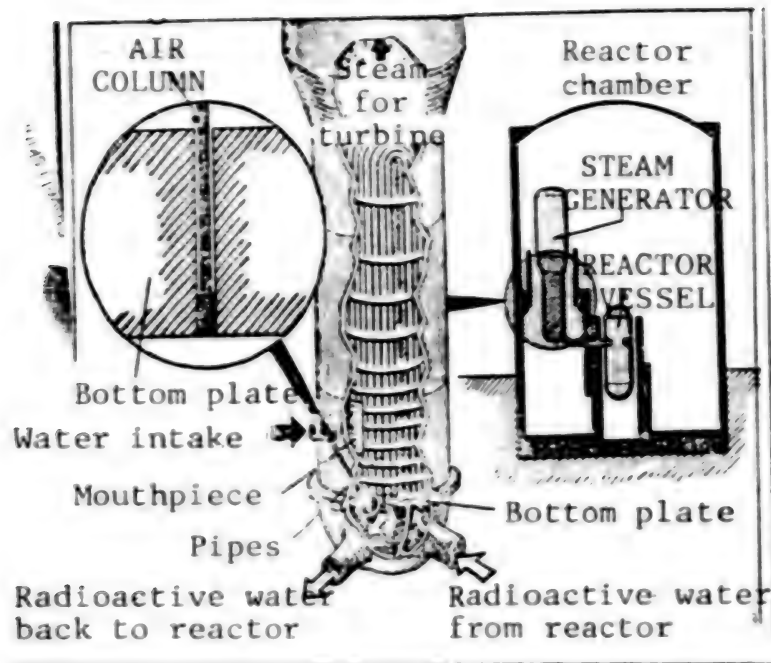
When Ringhals 2 was acquired, in the early seventies, the total construction cost was 2.5 billion kronor.

"The difficult part of this decision is to get people to understand that the alternative we have chosen is actually the least expensive, despite the one billion kroner," said Norrby.



The top part of the three 20-meter high and 30-ton weight steam generators can be seen on this somewhat distorted photographic perspective.

By replacing them, the steam generators in their entire length must be lifted up through the floor, turned on their side and brought out through a hole cut in the reactor housing wall.



In the steam reactor, heat from water that has been heated and become radioactive in the reactor chamber is conveyed to water which will be boiled to make steam to drive the turbine, which in turn drives the electric generators.

8952

CSO: 5100/2528

SWEDEN

URANIUM ENRICHMENT CONTRACT MOVED FROM U.S. TO FRANCE, UK

Stockholm DAGENS NYHETER in Swedish 10 Jan 85 p 17

/Article by Peter Bratt: "Vattenfall Cancels Agreement With the United States: Uranium Enrichment Moved to Europe"/

/Text/ The enrichment of uranium as fuel for the Swedish nuclear power plants will be moved from the United States to Europe. As of 1987 and for another 10 years, the deliveries from the United States will cease. At that time the enrichment will be performed instead by the French Cogema and the British-Dutch-West German Urenco.

The state-owned Vattenfall has six reactors online today, four in Ringhals and two in Forsmark. Vattenfall has a contract for the job of enriching the uranium for five of these reactors with the United States Energy Department.

The enrichment for the sixth reactor is performed by Cogema through an Italian state-owned company. The same goes for reactor seven, i.e. Forsmark 3, when it goes online.

Vattenfall has now cancelled the contract with the United States as of 1987. In its place, Vattenfall has made an enrichment agreement, on a 10-year basis, with Urenco which is a consortium owned by Britain, Holland and West Germany and with Cogema.

The enrichment performed by Urenco, concerns three reactors and will be performed in Almelo in Holland. The new contract with Cogema concerns the enrichment for another two reactors and will be performed in La Hague in northern France.

"Advantages"

"This transaction affects five reactors. It only concerns the enrichment service itself. The purchase of uranium is not affected. It is handled according to other agreements," says Lars Gustafsson, technical director at Vattenfall.

"We buy natural uranium mainly from Canada, France and the United States. The French buy theirs from Nigeria. The uranium is then shipped for enrichment, after which we make fuel rods from the material.

"We consider it advantageous to move the contracts now that we can eliminate the rising cost of the dollar and that we are assured of deliveries by using more suppliers.

"There is nothing that prevents us from moving back to the United States in the future. At this time, this is more advantageous," says Lars Gustafsson.

Veto Power

At the present time the United States has veto power concerning the final use of the nuclear waste. At issue is where processing of the waste can take place and what is to be done with the end-product, plutonium, which can be used for production of nuclear weapons.

There does not seem to be a similar veto power among the new contractors for the enrichment of uranium for the production of fuel rods for the Swedish nuclear power plants.

At this time Sweden has a total of 10 reactors online and 2 more will be going online in the near future.

12339

CS0: 5100/2539

TURKEY

AGREEMENT IN PRINCIPLE FOR KWU TO BUILD AKKUYU-2

Istanbul DUNYA in Turkish 18 Jan 85 pp 1, 7

[Text] Ankara (DUNYA) - Talks between Turkey and Canadian AECL [Atomic Energy of Canada, Ltd] and West German KWU [Kraftwerk Union] on the Nuclear Energy Power Plant Project resulted in a decision to have the project carried out in the form of two separate plants. It was decided at the conclusion of yesterday's meetings that the first Akkuyu nuclear power plant would be built by the Canadian firm AECL within the framework of the "build-operate-turn over" formula.

At the conclusion of talks with the West German firm KWU, meanwhile, it was announced by Minister of State and Energy and Natural Resources Sudi Turel that agreement in principle had been reached for this firm to take on the second power plant adopted for construction at Akkuyu.

Final talks on the contract for the nuclear plant resulted in agreement between Turkey and AECL on having this firm build the plant in accordance with the "build-operate-turn over" formula. According to provisions of the protocol concluded yesterday, a consortium headed by AECL, with the participation of Enka Holding, will build the first Akkuyu nuclear power plant. The Turkish Electric Power Corporation [TEK] will participate with 40 percent of capitalization and AECL with 60 percent of the jointly operated company to be formed under the terms of the agreement. Barring any change, the company's capital will be 50 billion liras, as reported earlier.

Energy and Natural Resources Minister Sudi Turel, in a statement after the meeting yesterday, said that detailed talks and contract preparations for the joint company that will operate Akkuyu-1 would be completed in 4 months. Sudi Turel announced that the cost of the first nuclear power plant, to be built by AECL, had been worked out at \$964 million.

Agreement was not reached in the talks with KWU on the Turkish-proposed "built-operate-turn over" formula. While the West German firm stuck to its previous proposal and announced that it had not accepted this formula, agreement in principle was reached at the conclusion of the meeting for this firm to do the second power plant scheduled for building at Akkuyu.

In discussing the contacts related to the second nuclear plant, Energy and Natural Resources Minister Sudi Turel said, "We reached agreement in principle with the Germans on the second Akkuyu plant. KWU will participate in the operations firm to be set up in connection with this plant at 51 percent and TEK at 49 percent."

Energy and Natural Resources Minister Sudi Turel noted that talks would be continuing with the German firm on the final contract for Akkuyu-2.

Turel said, "These talks will deal with the cost of the second plant. We will do our part as regards the infrastructure for the second Akkuyu plant by the time the contract is completed."

According to information provided by Sudi Turel, the "build-operate-turn over" formula will not apply as regards the second plant. Stating that "a new model" would be developed on this point, Turel pointed out that "the extension of talks with West Germany came about because of conflicts over guarantees."

8349

CS0: 1500/2535

END

END OF

FICHE

DATE FILMED

6 MARCH 85